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Bovine Mastitis.

Discussion at Royal Counties Division Meeting.*

Dr. F. C. MINETT, in the course of an opening address, said he had felt a little hesitation in accepting the invitation of the Secretary of the Royal Counties Division to speak on the subject of mastitis, because treatment was necessarily the aspect which appealed most strongly to the practitioner and under that heading he had nothing new to offer. He had decided, however, that an informal talk, rather than a set paper, with more particular reference to diagnosis and the control of the disease, might prove acceptable to members and stimulate a discussion.

He and his colleagues, A. W. Stableforth and S. J. Edwards, had been studying mastitis in cattle for just over three years, and he had always endeavoured to keep practical issues in the forefront of the research programme.

Dr. Minett pointed out that the term mastitis covered a number of separate conditions with different bacterial causes and with local changes of a diverse nature. (These conditions were briefly described, some of the essential facts concerning each being displayed by means of a chart).

A.—The *chronic streptococcus form*, which occurred in cows in milk, was the most common and in the aggregate caused the greatest losses. It was especially common in cows which had had at least two or three calves. So far, they had examined 1,100 cows belonging to 20 herds and had found 40 per cent. of these cows to be infected in at least one quarter. Most of these infections were of an occult nature. Unfortunately, the disease was frequently so mild in its course that owners were inclined to the view that it was of little consequence and, as a result, it was often allowed to spread unchecked. Transmission from cow to cow occurred by the hands of the milker.

B.—*A mastitis of a more acute nature*, caused by a different type of streptococcus, was sometimes seen, especially in young, recently-calved cows. The local changes occasionally brought about rapid destruction of the affected quarter.

C.—The *gangrenous form*, caused by staphylococci, which usually occurred shortly after calving and often caused the death of the animal.

D.—*Summer or epidemic mastitis*. A suppurative form, due to *B. pyogenes*, frequent in dry cows and maiden heifers and commonly said to be spread by flies.

E.—*Mastitis due to other organisms* such as *B. coli*, actinomyces, *B. necrosis*, was comparatively rare.

F.—*Tuberculous mastitis*.

With form A, diagnosis was often difficult on purely clinical grounds on account of the large proportion of latent or occult cases. In order to pick out these cases a number of methods had been proposed, some of which could be carried out in the cowshed, while others could only be applied to milk samples in the laboratory. Among the former could be mentioned:—

(*a*) Palpation of the udder shortly after milking.

(*b*) Examination of a little of the fore milk on a black cloth or fine sieve in order to detect small clots.

(*c*) Testing the reaction of the fore milk by means of brom. cresol purple papers. In mastitis the milk was often abnormally alkaline, producing a purple colour on the paper instead of the normal greenish-yellow.

Laboratory methods of diagnosis included:—

(*a*) Inspection of the amount and characters of the deposit obtained on centrifuging.

(*b*) Microscopic and cultural examination of this deposit.

With regard to the problem of controlling mastitis, there was a great deal to be learnt. It should again be emphasised that there were several different forms of the disease and until they knew more about the way in which some of these forms arose little would be accomplished. In spite of many attempts, the production of an efficient vaccine could not be said to have been realised.

So far, their efforts at the Institute had been directed towards seeing whether, with the co-operation of the owners, chronic streptococcus mastitis could be eradicated from five selected dairy herds. Incidentally, this work was giving scope for a number of other observations. Attempts at eradication resolved themselves into a question of diagnosis and subsequent milking of infected cows last. It would be appreciated that, in order to obtain a decisive answer, this work must proceed for some time after the last infected cow had been evacuated under ordinary farm conditions. At the moment all that could be said was that the results were hopeful.

The problem of controlling even the one form, chronic streptococcus mastitis, could not be discussed in a few words. On this occasion it was possible to do little more than refer to the principle. He considered that in the present state of knowledge the best thing a veterinary surgeon could do for a client who was troubled with this form of mastitis was to guide him in an endeavour to pick out infected cows. For this purpose the methods referred to above were available. Even the simple methods, applied to the animal's milk in the cowshed, if combined with clinical examination of the udder and a knowledge of the approximate age and previous history of the cow, would enable a large proportion of the infected animals to be detected. The assistance of a diagnostic laboratory would be required if every infected cow was to be removed. The udders of the group classed as healthy should be examined in a similar manner from time to time and the owner should ensure that all cows classed as infected were milked last. Outside purchases should be confined to first-calf heifers if possible, but in any case the udder and milk should be examined before the animal was put with the clean cows.

* Held at Aylesbury, April 24th, 1931.

DEPT. OF VET. MEDICINE

For the prevention of summer mastitis it was advised that during the warm season dry cows should be brought in from grass at intervals in order that their udders might be examined and treatment applied if necessary. The opportunity could be taken at the same time to apply some repellent ointment to the teats.

Discussion.

Captain W. L. Little, in opening the discussion, said that he was sure they were very grateful to Dr. Minett for coming down there that day to speak to them on that subject. (Hear, hear.) There was no doubt that just now mastitis was the bugbear of the dairying industry, and, in his opinion, it was getting more prevalent every day, the reason for that being the way in which it spread, though, unfortunately, they were not sure how. Dr. Minett had said that the disease was spread by anything that would touch the cow's teats; he did not mention udder cloths, which he (Captain Little) believed to be a very common method of spread of chronic streptococcic mastitis. If they would carry their minds back to the cowshed and remember how those udder cloths were used, they would appreciate the force of his observations in that connection. It was quite a common thing for one cloth to be used for 30-40 cows, and not only that—there was often only one pail. How often, too, were the udder cloth and pail sterilised? The cloth might be sterilised sometimes; the pail, never. The udder cloth and the pail should be sterilised after each milking and there should be more than one.

A cow which had chronic streptococcic mastitis had her udder wiped with that cloth, which was presumably rubbed along the teats also and which thus became the repository for some exuded infected milk. After, perhaps, a hurried rinse in cold water the process was repeated on the next animal, and by the time 30-40 cows had been dealt with the cloth was a slimy mess.

Another dirty trick the cowmen had was to strip the bad milk on to the floor of the cowshed, and the standings thus became contaminated. He always advised that the cows with bad quarters should be stripped into an old tin containing some good disinfectant.

Another method of spread, especially in the summer form (so-called) of mastitis, was by flies. He should never forget one case to which he was called as a second opinion. He went down to the meadow to see these dry cows and, although they were dry, their udders were literally black with flies. If the flies were very numerous they made the tip of the teat sore and a wound was caused, so that, if there were any pyogenes bacilli about these flies were very likely to find them and carry the infection to the tip of the teat.

With regard to diagnosis: he happened to act for a society that guaranteed the udders of cows sold at sales by public auction, and his hearers would be surprised at the number of cows he found, on going through them, to be showing some lightness of one quarter. The testing of the milk of such cows with brom. cresol papers would yield a purple reaction in the majority of cases. In using that paper, if they looked at it closely they would often see a few flakes from the quarter on the paper itself. In his hands the brom. cresol papers had been quite a help, but the milk must be used directly from the teat.

Control of the disease was, of course, a most important point, and he thought that Dr. Minett's idea was a most excellent one, but whether they were going to get their clients to carry it out was another matter. Chronic streptococcic mastitis was a disease which did not affect the general health of the cow; consequently, they were seldom called in. When they were, they told the owners to have the affected cows milked last, to keep separate cloths and pails, but too often the next time they visited the herd they would find that their instructions had not been carried out. Those animals, although not seriously ill, gave less milk from the affected quarter; every attack they had, usually after each calving, was worse than the last, until ultimately they lost the quarter altogether. Quite a number of cows had so-called blind quarters, secreting a thick, purulent material. In herds that possessed such cows mastitis seemed to be more prevalent than in herds in which such animals had been disposed of, and one could quite imagine that that purulent material got on to the cloth and was thus spread from cow to cow.

Captain S. Villar observed that Dr. Minett had deluged them with facts, but had not advanced any theories, and it seemed presumption for them to say anything in criticism of the address in view of the fact that he must have examined thousands of slides and made many cultures and experiments in connection with mastitis.

He noticed that Dr. Minett had said that he had tested the toxic effect of streptococci on the human skin, therefore, presumably, one of the animals he had experimented upon had been himself. (Laughter.)

The question that perhaps excited the public mind most to-day in regard to veterinary pathology was mammary disease of the cow. Farmers to-day were sustaining enormous financial losses thereby, while the matter had also an important public health aspect, and the only thing in the address with which he (Captain Villar) was disappointed was the pessimistic view taken by Dr. Minett as to the possibility of his ever being able to make a vaccine or some other product which would act as a prophylactic in connection with that disease. It would add enormously to the credit of the veterinary profession if any member of it were able to devise some means by which mastitis might be prevented and also some means by which it might be more effectually treated. He could not help thinking that a man whom he knew to be so persistent in his work as was Dr. Minett would some day be able to help them in that way. (Hear, hear.)

As to the method of access, he would like to ask Dr. Minett if he thought that at times the method of infection was through the mouth—he was speaking now of ordinary streptococcic mastitis. He knew that some people held that theory. It occurred to him, from what he had seen of it—and he had seen a great deal—that the mode of access was most frequently through the teat duct. He was much impressed by a remark passed to him the previous day by an old cowman. The speaker was examining a pedigree Friesian cow under the Milk and Dairies Order, and that cow had a big, healthy-looking bag with enormous teats. Some curdled milk was coming away from one quarter, and the cowman said: "I often have trouble with that cow, she has such big pipes." He (Captain Villar) thought that was the secret of a lot of the trouble.

With regard to the *B. coli* form, he would like to ask Dr. Minett if the mastitis associated with *Bacillus coli* was frequent. In these days, when clean milk competitions were in vogue, a cow keeper would occasionally ask "What is the meaning of 'coli'?" He would generally reply "My dear fellow, you have let some dung get into the milk"—(Laughter)—but apparently the *Bacillus coli* made the mammary gland its habitat and the cow, in giving the milk, secreted the *B. coli* with it.

He desired to ask if the essayist considered that the cow was ever the passive carrier of human disease: did he think that the organisms of human disease were capable of being taken into the cow's udder and by this means of causing what were known as milk epidemics—in other words, did the human streptococcus multiply in the cow's udder?

There was a question as to the spread of that disease. On two occasions within the last year or two he had had outbreaks of contagious mastitis, the two chief outbreaks having been connected with the use of milking machines. In each case the milking machine had not been installed very long and the people were amateurish in their use. In one outbreak, 21 cows out of 73 were suffering from streptococcic mastitis; in the other case there were not so many cows and, of course, not so many were affected. He desired to ask the experience of that meeting as to whether ordinary streptococcic mastitis was spread by milking machines—in each instance he had told the owner of the cattle concerned that the machine was undoubtedly a factor, but not the chief factor, which was that he had got a streptococcic infection present amongst his herd,

and also that his machine had not been properly disinfected by steam: there seemed to be a reluctance on the part of a man who had just bought a machine to subject the rubber to very high temperatures. In cases such as he had recounted, where twenty-one cows had one, two, or even three quarters affected, an enormous loss to the farmer was entailed, and that tended to give the milking machine a bad name. In the district with which he was associated there were perhaps 20 milking machines in constant use, and as a general thing one found them extremely useful and that they in no way spread disease if kept properly clean and sterile.

Captain J. R. Hewer, in thanking Dr. Minett for his very instructive and interesting address, observed that he knew that the author had put a tremendous amount of work into that subject.

As the last speaker had said, mastitis entailed very serious loss for the farmer, especially if it occurred in the heavier milkers. Was it Dr. Minett's experience that if one quarter was affected, the milk of the other three, if their milk was apparently all right, was fit for use, or what did he recommend?

He was interested in a case in a herd where several cows were being milked by the machine. The owner received a telegram to say that he must have his cows examined and, in response to his enquiry by 'phone, received the reply that the milk had been examined and had been found dangerous for human consumption owing to the presence of streptococci. He (Captain Hewer) examined the cows and, by manipulation, picked out eight cows with thickening of the udder. Next day he went through all those that had passed, stripping out all the milk carefully, and he picked out four more cows, the udders of which were apparently all right, judging by manipulation of the quarter only. All the cows he picked out responded to the brom. cresol test, with the exception of one, which was giving clotted milk—she was a fairly heavy milker, not going stale.

He was sure that they were all very disappointed that Dr. Minett had not got any lightning cure for them: from his remarks he gathered that he recommended getting rid of all mastitis cases where economic considerations permitted.

With regard to summer mastitis and infection, it was really remarkable how suddenly some of those cases came on. Had Dr. Minett any experience of sealing the teats and did he get summer mastitis in cows with which that precaution was taken?

Major H. G. Lepper expressed agreement with Dr. Minett's statement that country practitioners often met with cases of chronic streptococcal infection. This usually occurred in old cows which had terminated a long period of lactation and were being fed off on rich pasture land. The udder was noticed to be swollen and in course of time became suppurative, while, in extreme instances, the quarter would generally slough away. These cases generally happened in animals which were thriving and doing well; possibly there might have been some previous affection of the udder, but there was often no reason to suspect it.

He must thank Dr. Minett for his great kindness in coming to Aylesbury that day and for giving them such an excellent address.

Major J. J. Dunlop associated himself with the previous speakers in thanking Dr. Minett for giving them such an excellent address on the bacteriology of that disease, with which they all found so much trouble in dealing.

He quite agreed that the chronic streptococcal infection was very widespread and extrémely difficult to deal with. He desired to stress the importance of the question asked by Captain Hewer as to whether the milk from the unaffected quarters could be used with safety, because he found it difficult to advise the farmer as to the discontinuance and resumption of its use.

They found summer mastitis most frequently in hot, dry summers, and in many cases in uncalved heifers, even yearlings. That brought them to the consideration of the fly-borne disease: was the teat duct open before the animal had been in milk at all, and was infection by that route likely?

In regard to the disease generally, he had often found that a cow lying in a draught in cowsheds and byres, *i.e.*, the cow in a standing opposite a badly-fitting door, would become infected: that, to his mind, would not tend to bear out the theory of infection being by way of the teat: it would appear in such cases to be more a question of the resisting power of the gland being lowered and an already existing or dormant infection then flaring up.

They had not touched on the matter of treatment—which, indeed, was perhaps rather outside the scope of the address—but he did think that in the greater number of cases, treatment was indicated, and that in most the condition could be at least ameliorated. He, personally, thought that internal medication with formalin was of service in some of those cases, and he used it in combination with the administration of a vaccine. [Major Dunlop instanced the employment of a vaccine in a Grade A (T.T.) herd, with very satisfactory results.]

He desired to know if any member considered that external applications of any kind were beneficial. Personally, he did not think that it mattered very much what measures one employed externally, or that one was better than another.

Were there any proven cases of deleterious effects following the drinking of milk from chronic streptoccocic mastitis cases and, if so, what was the nature of those effects?

In regard to spread, no doubt the disease was often spread by the hands, but in the Grade A (T.T.) herd to which he had referred they were particularly careful about that, but they still got odd cases. It had often struck him, too, that infection by the mouth was a possible source.

Lieut.-Colonel H. C. Jagger expressed surprise at Dr. Minett's statement that the chronic form of mastitis was the commonest, but that was no doubt to be explained by the fact that, in a country practice at least, veterinary surgeons were not called in to see these cases.

He was mystified about the pyogenes form. Apparently that was suppurative, and thus one would expect to get a discharge of laudable pus, but he was bound to say that in most of these cases of summer mastitis or garget to which he was called, and which he presumed were cases of pyogenic infection, the discharge was not a laudable pus at all, whether it had gone a stage further before he saw it, he could not say, but the discharge was chocolate-coloured and had a very offensive odour; indeed, he should have called many of those cases necrotic. That was the form of mastitis the spread of which he had ascribed to flies. The sloughing out of the whole of the quarter was a very frequent thing, and in his experience that was the best thing that could happen, for when one got a generalised infection no hope remained for the cow. He was still doubtful whether or not surgical interference should be practised at once, as if one could encourage the slough to come away one would save the case.

He would also like to mention the condition known as pea in the teat, although that had nothing to do with any form of mastitis. In these cases one could either interfere or leave the thing alone. If they lightly fed the animal for a day or two, and did not encourage the secretion of milk, they could usually achieve a good result, but a three-quartered cow. He had had unfortunate experiences in interfering with a fibrous teat: he could remember two cases, in one of which his assistant operated in the same way in which he did, and in both cases death occurred next day, although the teat syphon was properly sterilised and the operation was correctly performed.

He, also, would be very interested to hear if anyone had any local applications which were of use in mastitis. If he were asked to inoculate a herd with vaccine for that condition, he always told the owner that he would be pleased to do it, but that he could not guarantee the result.

The Chairman (Major A. C. Duncan) said that he

thought it was perfectly obvious from the discussion that the members had all been extremely interested in the paper that Dr. Minett had given them that day. (Hear, hear.)

He, too, was a little disappointed that Dr. Minett had not held out greater hope of effective vaccination in the future. Some of them would remember that last year Mr. Baxter read a very excellent paper to them, mainly on that subject, and at that meeting there was (as there always was in discussions on mastitis) a very animated discussion. A number of speakers spoke of vaccination, and said it was useless, while others spoke of having had 100 per cent. success with vaccination. Personally, he could not help thinking that vaccination seldom achieved 100 per cent. success, but there were times when one did get quite a spectacular result, perhaps unexpected, through vaccination. In those cases he was always led to believe that, probably accidentally, they had got just the right organism in the vaccine, and that encouraged him to hope that Dr. Minett and others working in the bacteriological field would be able to produce a vaccine that would enable the practitioner, not accidentally but usually, to employ measures which would be appropriate to the different forms of mastitis.

He was rather inclined to think that staphylococcic mastitis was much more common than Dr. Minett had led them to believe. The owner of cows was seldom as much interested in the academic discussion of the pathology of mastitis as he was in preserving the life of his cow, and when he asked him to see a cow which was extremely ill, and he examined the udder and got a little coffee-coloured material, he felt inclined to turn his thumbs down. He would like to be able to look across that cow at Dr. Minett and ask "What am I to do with this?"—because, in some cases, they were dead in the morning. He was afraid that an academic discussion on the various varieties of streptococci that affected the udder would be poor comfort to the owner in such a case—(laughter)—what that man wanted was an immediate cure to save the life of the wretched animal.

At the same time, the extended study of the bacteriology of those cases was intended ultimately to lead to the prevention of the disease, and he did not think that the Ministry of Agriculture would spend even the meagre amount that they did spend on research if they did not look forward to some amelioration in the hard lot of the farmer who was losing his cattle. Therefore, he thought they were entitled to try and see how those things would apply in general practice—an aspect of the matter to which he must say Dr. Minett referred at the very start of his address.

The Reply.

Dr. Minett expressed his gratification at the excellent discussion to which his address had given rise.

During three years' work they had come to realise the complexity of the subject. As could be seen by a glance at the chart, the term "mastitis" covered a number of different conditions, and each of these presented different problems of great importance. They had started by examining the bacteriology of a series of clinical cases, work which had been made possible through the kindness of a number of veterinary practitioners. He sometimes felt that he had been able to do very little in return for this kindness, but he could say that that was due not to any lack of desire, but rather to the nature of the problem. Thanks to this collaboration they had been able to make a survey of the bacteria responsible for mastitis and to compare their findings with those of other workers. The series of cases examined—113 in number—was not a large one and it might well be that they had obtained an incorrect impression as to the prevalence of certain forms, *e.g.*, those due to staphylococci. It was probable, too, that the incidence of *B. pyogenes* mastitis varied from one district to another in different years. Mastitis, due to organisms of the *B. coli* group, appeared to be relatively uncommon, though he had heard of cases in which persistent contamination of bulk milk with *B coli* had been traced to occult infections of the udder.

Captain Little had referred to the brom. cresol purple test and had pointed out that when the milk was drawn on to the paper the presence of fine clots could be looked for at the same time as the reaction was read. He (Dr. Minett) thought the test was a very useful one and it had the merit of simplicity. In saying this, however, it was necessary to mention its limitations. At a single examination, the test was certainly less reliable than a properly-conducted cultural test and it could not be used on cows that were being dried off. In udder infections the disease process was not stationary and consequently the milk of many infected cows varied in reaction from time to time, so that a reaction might be given one day and not another. There was also a proportion of doubtful reactions to contend with.

Captain Little had done well to emphasise the importance of mastitis to the dairying industry and in connection with the method of spread he had stressed the importance of the udder cloth. Their experience had been that rather intimate contact with infective discharge was necessary for infection to take place, and that the disease appeared to spread rather slowly. For example, in the herds with which they were working the milkers were instructed that cows marked out as streptococcus-infected must be milked last. He thought he could say that in the main those instructions were carefully followed, yet in the course of months many mistakes must have occurred. In spite of this, three-monthly bacterial examinations had so far shown that it was uncommon for cows in the clean herd to become infected with the ordinary chronic form of mastitis.

Captain Sidney Villar had enquired as to the possibilities of cows becoming infected by the mouth. Experiments with milk heavily charged with mastitis streptococci had not shown that infection could be set up in this way. As to the exact mechanism of infection, he thought there was still much to learn. There was also much to learn regarding the origin and the factors governing infection in forms B, C and D.

With regard to a possible connection between milking machines and udder infections, little had been done by way of experiment. He had heard of instances in which the installation of a milking machine was stated to have been followed by a transitory increase in the prevalence of mastitis. He was inclined to put this down to an exacerbation of the symptoms in latent cases caused by a sudden change in the routine system of milking and not to any bad effect of the milking machine *per se*. The cow, being of a nervous temperament, was easily upset by changes such as these.

Captain Villar had also enquired as to the public health aspect of mastitis. It was agreed nowadays that mastitis streptococci were not dangerous to man. Milk-borne epidemics caused by streptococci, such as those of scarlet fever and septic sore throat, had been proved by American workers to be due in certain cases to the implantation in the udder of streptococci of human origin. This was followed by extensive multiplication in the milk ducts, so that the milk of a single cow was sufficient to contaminate heavily the milk supply from the herd. The history of many of these outbreaks was similar, in that they began in an explosive manner and within a short time large numbers of persons were affected. A history such as this made it very difficult to believe in direct contamination of the milk by human beings. Fortunately, such outbreaks were comparatively rare, though there had been a number in the past in the United States as well as in this country. Their prevalence might be expected to depend to some extent upon the distribution among the human population of the bacteria in question.

The question had been asked whether the existence of clinical mastitis in, say, one quarter of the udder should lead to the rejection of the milk from the other quarters. This question had been answered in principle by what had just been said. Mastitis streptococci not being dangerous to human health, the procedure would depend upon other considerations, such as the appearance and palatability of the milk from the apparently sound quarters. The mere

fact that milk which was unchanged in outward appearance might contain streptococci could scarcely be put forward as a reason for rejecting it, because if one pursued that reasoning the milk of one-third of the cows in the country ought to be excluded from human use.

Dr. Minett expressed regret that he had not been able to speak hopefully on the subject of vaccines for the prevention or treatment of mastitis. A good deal of work had, of course, been carried out in attempting to produce a useful immunity against streptococci, but in a general way it had to be admitted that the results had not been encouraging. In the case of streptococcus mastitis, several kinds of vaccine had been tried, such as stock or autogenous, dead or living, but on the whole the results had been disappointing. Some observers claimed to have had successes, in other cases the results had been variable and this apparently had been the experience of the Chairman and of Colonel Jagger. With regard to the apparent successes mentioned by Major Dunlop in connection with a certain herd, he was afraid he could not offer anything concrete. It ought to be remembered, however, that the incidence and severity of mastitis infection varied in herds from time to time and he understood Major Dunlop to say that the worst cases had been removed before vaccination was adopted. In his view it was scarcely to be expected that vaccine treatment would avail in streptococcus mastitis, when one thought of the complicated structure of the mammary gland and the fact that the organisms were largely multiplying in the secreted milk and not wholly within the tissues. He would not care to affirm that immunisation was a hopeless line of enquiry, but at the present time he could not regard it as attractive and there were a number of other aspects of the subject which were pressing for solution. When all these facts were considered, he was pleased to hear Captain Little's opinion that methods of control based on diagnosis and the milking of infected cows last were at least rational. In his (Dr. Minett's opinion) this was the only rational method at present available for dealing with the common streptococcus form of mastitis.

With regard to Captain Hewer's question as to what should be done with infected cows, that would depend upon such factors as the severity of the infection, the number of quarters infected, the age and type of animal, its breeding and milking record and whether it was the subject of other diseases, such as abortion or tuberculosis. If the cow was milking tolerably well and appeared to be otherwise suitable, there was no need to get rid of her simply because she was suffering from mastitis in a mild degree. The important points were that she should be thoroughly and regularly milked and, above all, that she should be milked after the healthy cows.

B. pyogenes infections of the udder were often referred to as "*summer mastitis*," but this was perhaps rather a misnomer, as cases were sometimes met with during the winter months. The type of case described by Colonel Jagger as necrotic with frequent sloughing of the quarter was usually ascribed to staphylococci. The secretion was not purulent in the ordinary sense, but in the early stages resembled hæmolysed blood, later becoming somewhat thicker. He entirely agreed with Colonel Jagger that the expression "*summer mastitis*" might very well be applied also to gangrenous mastitis, as this form, too, appeared to be more common in the warm season. The Chairman had referred to the treatment of these gangrenous cases. Practitioners would agree that in this matter prompt surgical treatment by amputation of the teat was often essential in order to save the life of the cow.

Army Veterinary Service.

London Gazette—War Office—Regular Army.

May 19th.—Captain A. G. Heveningham is restd. to the estabt. (May 3rd).

A Review of British Veterinary Services in Mesopotamia,

November, 1914, to October, 1916.*

By Captain Burlin C. Bridges, U.S.A. Veterinary Corps.

In August, 1914, there came the explosion of war in Europe. Nearby, the world shook in the realisation of the unbelievable. Thousands of miles from Europe in the backwaters of the East, the world did not shake. There was no paralysis of business, no rush on the banks, no panic, no fear of imminent starvation, no roar of troop trains in the night. Then suddenly, on October 16th, a force left India, bound, few knew where. Two days at sea sealed orders were opened and part of the force was routed to Mesopotamia. Why to Mesopotamia? Why the secrecy involved?

At the beginning of the 20th century, two events occurred which had an important bearing on the political situation in the middle East. One was an agreement between Germany and Turkey for the construction of the Constantinople-Bagdad Railroad, an important link in Germany's dream of Middle-European dominance. The second was the discovery of oil in southern Persia. The general result of the Bagdad railroad scheme, which appeared to be aimed directly against Great Britain's position in the middle East and was therefore a menace to India, and to the British monopoly of the Persian oilfields, prejudiced Anglo-Turkish political relations and caused the Turk to look more to Berlin. To insure the security of India and her communications with England has been the basic aim of the British eastern policy ever since that country added India to her Empire. As ruler of India, as chief owner of the Suez Canal, and as Controller of the Anglo-Persian oilfields, Great Britain was vitally interested in the affairs of the Mohammedan world. In the middle East, Turko-German policy was straining to bring about a coalition between the Mohammedan countries of Turkey, Persia, Arabia, and Afghanistan, a coalition based on anti-Christian, anti-British doctrine.

However, in the area about the head of the Persian Gulf, British prestige and interests had a firm foundation. The Anglo-Persian Oil Company, had run a pipe-line through the territory of the Sheik of Mohammera, and with this semi-independent ruler, who for years had bitterly resented and resisted Turkish egression, had contracted definite mutual obligations for the protection of the pipe-line.

Therefore, in the event of Turkey's entering the war on the side of Germany, British interests and prestige had to be protected. However, any landing on Turkish shores would constitute an act of hostility and it was not until war was declared that a British force could be landed at Iraq.

What part was the British Veterinary Service to play in this great struggle? "The Official Veterinary History of the War," edited by Major-General Sir L. J. Blenkinsop, K.C.B., D.S.O., Colonel-Commandant, Royal Army Veterinary Corps, and Lieut.-Colonel J. W. Rainey, C.B.E., gives us a most accurate account, verified from official docu-

* Reproduced from the *U.S.A. Veterinary Corps Bulletin*, Vol. xxv, No. 2. April, 1931.

ments, of the part played by the British Veterinary Service in Mesopotamia.

The Sixth Poona Division was mobilised in October, 1914, with a complement of three veterinary officers and the personnel of a field veterinary section. One brigade, accompanied by a veterinary officer, left India in the month of October and lay off the island of Bahrein, awaiting the declaration of war by Turkey. In November, the remainder of the division arrived, and a landing party was disembarked at Fao.

What sort of land was this, thought the British, and recalled stories of a land rich in romance of the ancients; the scene of the world's earliest civilisation; the location of the Garden of Eden, the land which had been made a garden spot and again destitute.

Concerning the modern Mesopotamia, an Arab proverb says: "When Allah made Hell, he found it was not bad enough. So he made Iraq—and added flies." Iraq, the area between Bagdad, Southern Arabistan, the Persian Gulf, and the lower Euphrates, is a flat plain of alluvial clay. Bagdad, five hundred miles from the Persian Gulf, is a little more than one hundred feet above sea level. Between the capital and the sea lies a vast area of featureless desert, of which the monotony is broken only by the two great rivers—the Tigris and Euphrates, and by the marshes into which they spill. Other than the palm groves which straggle here and there along the banks of the rivers, this inhospitable plain is treeless, stoneless and, away from the rivers—waterless. In the narrow belts along the rivers, canals, or marshes, small crops of barley, maize and millet are raised for animal food. The barley is good, but all the grain is dirty. It is threshed by being trodden out by cows and buffaloes. The pasturage is nowhere permanent, except in the extreme north and near the swamps and rivers.

When dry, the surface of the land is passable, but a few hours of rain turn it into a quagmire of greasy mud. In flood season, huge areas of desert are made into stretches of open water. Between May and October the heat is intense (134° F.). Between November and April it is cool, even cold. The rivers are changing current.

Thus we can see, to some extent, the difficulties which had to be overcome by the British Veterinary Services in Mesopotamia in organisation and administration. The veterinary personnel, consisting of three officers and less than a hundred men, was inadequate. Their equipment was small and antiquated, and the authors emphasise the fact that the organisation of the Army Veterinary Corps in India at the outbreak of the war was much inferior to that at home.

Basra, the port of the land from which Sinbad the Sailor embarked on his wonderful voyages, becomes more than an Arabian Night location when we follow the tasks of the three veterinary officers. All the Army Veterinary Corps personnel were concentrated with the force at Basra for a time. One of the officers was in command of the Veterinary Field Hospital which was camped in the old Turkish Cavalry Barracks. This left the other two officers for executive and inspection work among units. In addition to these duties a great part of their time was devoted to the animals of the local inhabitants. Glanders, biliary fever, and epizootic lymphangitis were soon revealed. Something had to be done to combat these diseases as they presented a serious menace to the animals of the force.

Approval was given by the political authorities to organise definite sanitary laws consisting of the following:

(*a*) All horses, mules and donkeys were systematically and thoroughly inspected.

(*b*) Any suspicious cases were dispatched to a quarantine centre, and those ultimately declared infected were destroyed.

(*c*) Owners were invited, and the military police were ordered, to send animals suffering from wounds, galls, etc., to the veterinary hospital for free treatment.

In order for these laws to be successful, confidence of the Arab owner had to be gained, and money to pay for animals destroyed was necessary. The political service paid the money immediately, but the gaining of confidence was not so immediate. A few Arab dealers, who had known some of the veterinary officers in Poona, India, were forced to remain in Basra due to hostilities. These Arabs spread testimony at the bazaar coffee-house as to the ability of the British officers in relation to horses. In another instance, money was paid to a tearful lad for his white donkey, which had a broken leg. This was published by the grateful owner at the bazaar and helped to foster confidence. An extensive free clinic at the veterinary hospital was the outcome of these influences and detecting and controlling diseases was made possible.

The disposal of carcasses became a grave matter with the occupation of Basra. The Anglo-Persian Oil Company objected to their consignment to the river as they were washed ashore near their locations. It was not practical to burn the carcasses, as all firewood had to be imported from India. Burial was the only alternative. It was difficult to find high ground, above the level of the desert which during the flood season would not be submerged.

During the period under review the only means of transport was by water, as the railroad was only in its initial stage. A few barges and tugs were all that were available for the landing of troops, animals and supplies. Ships could not be brought alongside a wharf or jetty; the animals had to be slung into barges, which were already loaded with bales of bhoosa, towed to the river shore and then landed by improvised ramps. Tugs and small craft became scarce with the advance up the Tigris. Troops up the river had to be supplied, which was a very slow process, but the only one. Barges were lashed to each side of a paddle boat and on these barges men, animals and supplies were carried to the front. Progress was slow against the stream, and when the floods subsided the depth of water was variable. Boats would often be aground for three or four days, which entailed a shortage of supplies and extreme suffering. On one eight-day journey, three days were spent aground in the vast expanse of the Hamar Lake in a temperature of 123 degrees and under exposure to the nightly attention of the malevolent marsh Arabs.

At another time great difficulty was met in supplying the force at Shaiba, which was only a short distance from the base. The desert had become an inland sea eight miles wide and from knee-deep to six feet deep, due to the flooded Euphrates seeking that course to the Persian Gulf. A track was charted across this flood, and mules

were used to carry supplies to the troops on the Shaiba shore for many days.

The veterinary staff was assigned the replacement of animals in the cavalry brigade at Shaiba, as there was no remount officer or personnel with the force. This involved the establishment of a remount depôt; the reception and issue of hundreds of horses received for overseas, discharged from hospitals, captured from the enemy and the property of officers who had become casualties which had to be valued and paid for, in addition to the purchase of horses. These duties were performed by the veterinary staff for over a year in addition to its own duties.

It was not until the arrival of the two Indian divisions from France in January, 1916, that veterinary establishments were completed in personnel and supplied with the latest equipment. We can realise how their arrival must have been welcomed. For the first time the Army Veterinary Corps was concerned with only purely veterinary duties with officers and personnel available for these duties.

The authors conclude the first phase of the veterinary activities in Mesopotamia with a discussion of the diseases of highest incidence, their treatment and clinical matters of interest.

In one of the technical pamphlets: "Horse Management and Its Relation to Preventive Veterinary Medicine," issued during the War by the British, we find the following paragraph:—

"Much has been said and written concerning veterinary preventive medicine, but it is not sufficiently realised that the basis of veterinary medicine from a military standpoint consists in horse management. Just as antisepsis is steadily giving place to asepsis, so must the care of horses in health supersede their treatment in disease if we are to attain perfection."

The officers of the British Veterinary Service proved themselves past masters in horse management during those years in Mesopotamia, and it is with this thought in mind that the writer wishes that every veterinary officer might read of their endeavours.

Diet and Health.

Colonel McCarrison's Experiments.

Lecturing before the Royal College of Surgeons of England, Colonel Robert McCarrison, Director of Nutritional Research, Indian Research Fund Association, described experiments carried out by him to determine the effect on various populations of animals of different kinds of diet.

The laboratories of the Indian Research Fund, he stated, are situated at Coonoor, in the Blue Mountains of Southern India, where an excellent climate, sunny but neither too hot nor too cold, persists throughout the year. Here live some 1,000 stock albino rats, in pairs, in "roomy, netted-wire, screened and strawfilled cages." Five or six litters are taken annually from each pair. The food consists of wholemeal flour, unleavened bread lightly smeared with fresh butter, sprouted Bengal *gram* (legume), fresh raw carrots and cabbage, unboiled whole milk, a small ration of raw meat with bones once a week, and abundance of water both for drinking and washing. Colonel McCarrison stated:—

"During the past two and a quarter years there has been no case of illness in this community of albino rats, no deaths from natural causes in the adult stock, and, but for a few accidental deaths, no infantile mortality."

Very different was the condition of a group of rats fed on diets deficient in one way or another, but notably deficient in Vitamin A.—*The Times.*

The Veterinary Record.
May 30th, 1931.

Mastitis in Cattle.

In this issue we print the report of a meeting of the Royal Counties Division, at which the subject of bovine mastitis was fully and freely discussed. In the course of an informal talk, Dr. F. C. Minett dealt with certain of the more practical aspects of mastitis and gave a brief account of some of the work which has been carried out at the research centre of the Royal Veterinary College.

Among the many points which were raised at the meeting, three may be singled out for special note.

The first is that the term "mastitis" covers a number of separate pathological conditions of different etiology, each of which presents its own particular problems. The investigator is therefore faced with a vast field of work, embracing both agricultural and public health interests.

In the second place, figures were quoted which show that, when only one of its manifestations is considered, *viz.*, the chronic streptococcus form, the disease is extremely widespread. These figures give some idea of the losses due to this cause which are being borne by the dairying industry of the country. The fact that this particular form tends to run a mild course and that many cases are latent, really disturbs but little the significance of this second point.

Thirdly, there is the suggestion, the correctness of which can only be proved or disproved by prolonged experimentation in infected herds, that this most prevalent form should be attacked on preventive lines. Such a procedure will not appeal to every owner, in spite of the slight disturbance to the normal farm routine which would be introduced. If, however, it is to be accepted that an efficient means of vaccination is a somewhat distant possibility, control by sanitary measures seems to be the only alternative plan at present available. In this case it will be the plain duty of the veterinary practitioner, not only to advise as to treatment of the individual declared case, but, what is far more important, to guide the owner in taking such steps as are feasible to detect the numerous latent cases which are important sources of spread.

One thing is clear. There is a great deal still to be learnt about the disease conditions which are grouped under the general heading of "mastitis." We may refer particularly, perhaps, to those severe forms with which the practitioner is so often called upon to deal. We express the hope that ample time, funds and opportunity may be available for the accumulation of sound knowledge on the problems presented.

London Cart-Horse Parade.

"The annual demonstration yesterday of the London Cart Horse Parade Society showed that, notwithstanding the use of motor-vehicles, the horse continues to have an important place in the work of transport," says *The Times* of May 26th. "The assembly of thousands of visitors within the Inner Circle of Regent's Park to see the parade also showed the popularity of the horse with the public.

"It was the 41st annual parade of the society, the objects of which are to improve the general condition and treatment of London cart horses, to encourage drivers to take a humane interest in the animals under their care, and to encourage the use of powerful cart horses suitable for heavy work in the London streets. All drivers of cart horses within the Metropolitan Police area are eligible to compete for the prizes offered by the society, and the judges consider each turn-out as a whole—horse, van, harness, and general appearance—giving due regard to the nature of the trade or business of the competitor. There were 784 horses, compared with 876 last year. The falling off was principally in the single horses, which numbered 632. There were 58 pairs, four teams of three horses, and six teams of four. Awards were also made to drivers who have been not less than 25 years in the continuous service of the same firm, and in this section the Isabel Constable prize was won by J. H. Davis with 48 years' service.

"Sir Walter Gilbey, the President, and members of the society witnessed the parade at the entrance to the gardens of the Royal Botanic Society, and the visitors included General Gouraud, Military Governor of Paris, and Field-Marshal Sir William Birdwood, who was one of the judges in the grooming and harness section. The awards were presented to the drivers by Miss Birdwood.

"Speaking at the society's luncheon, Sir Walter Gilbey said that they were threatened with legislation to prevent the use of horses in certain streets of London. He presumed that that was in consequence of the great congestion that had arisen. They all realised that something would have to be done in regard to traffic, but he emphatically denied that it was the horse which was causing the congestion. Oxford Street had been singled out for experiment, and that was the thin edge of the wedge for keeping horses off all the streets. He knew Oxford Street, and something of the traffic. It was not a question of horses impeding traffic there, or in any street in the West End. He could prove to any unbiased person that the causes of the congestion were the omnibuses, motor-coaches, and business lorries. Let there be a fair proportion in dealing with the traffic. From an economic point of view, the use of horses in certain forms of business was an absolute necessity. Statements had been laid before the Traffic Commission on the subject. To drive horses off the streets of our cities would not only be a grave injustice to traders, but it would be serious for the breeders of commercial horses.

"Field-Marshal Sir William Birdwood said it was a joy to see that they were able to produce the magnificent horses that had been exhibited. Reference had been made to the use of horses in the Army. Their use was by no means at an end, neither was that of the mule. They did not see much of the mule in this country, and perhaps they could not realize what its value was in India."

Clinical and Case Reports.*

Demonstration of the Lesions in a Case of Fowl Paralysis affecting the Sciatic Nerve.

By K. D. Downham, M.R.C.V.S., B.V.Sc. (Liverpool), D.V.H.

I wish to bring to your notice a disease which is causing serious losses amongst the poultry farmers of Lancashire. The disease is a new one, new at least to the majority of those who are experiencing it at present. I have here a bird which suffered from the disease. The sciatic nerve on each side of the body has been dissected and you will notice the great thickening of this nerve on the affected side and the normal-sized nerve on the other.

Mr. Marginson has had a good deal of experience of this disease clinically and I hope he will describe, in greater detail later on, the symptoms he is accustomed to find. This particular bird was lame in the left leg and latterly was quite unable to stand.

Birds are frequently affected in the wing, which is paralysed and drops to the ground; in cases of this kind the brachial flexus is found to be very greatly enlarged and thickened.

In many cases birds are apparently blind in one or both eyes and some exhibit brain symptoms. I have a bird in the laboratory at present, which, like the one I am to-day exhibiting, was very kindly sent to me by Mr. Marginson. This bird carries its head in the inverted position; many birds are seen which have lost the power of co-ordination of movement and run backwards until they come to rest against the wall or other object.

McGaughey and others have described this condition fully, but the actual cause of the disease is unknown. There is no doubt that it is becoming a very serious disease to the poultry industry in certain parts of Lancashire and Cheshire. In bringing this disease to your notice I hope to obtain the experience of the members of this Society in connection with it and to find out a little more about its incidence.

I have heard of farms where the keeping of poultry has had to be abandoned on account of this disease, and it is common to hear of the loss of several hundreds of birds on one farm in certain districts.

In the case that I am exhibiting both cæcæ were packed with Heterakis worms and four specimens of *Ascaridia lineata* were present in the small intestine.

In the small bottle I have here will be found the larger Ascarid worms, in the next bottle there are several hundred cleared Heterakis worms which I took from the right cæcum; in the other bottle you will notice that the left cæcum has been sectioned and many hundred Heterakis worms are present adhering to the mucous membrane and lying amongst the bowel contents.

I have made a number of *post-mortem* examinations upon birds which have suffered from fowl paralysis, and I have always found Heterakis worms to be present; this may be purely a coincidence, but it appears worthy of mention.

* Cases presented to the Lancashire Division, N.V.M.A., on the occasion of the Annual Meeting, held at Manchester on March 5th, 1931.

I shall be glad to hear the experiences of the members of this Society in connection with this disease and should be pleased if Mr. Marginson were afforded the opportunity of describing the disease as he finds it amongst his poultry clients.

. . . . .

Mr. G. C. Marginson, M.R.C.V.S., stated that he was very concerned with this condition and that large numbers of birds had died from the infection. The owners of poultry in his district were very perturbed, and one owner had estimated his financial loss at over £1,000 during the past two or three months. The name described the disease, and the symptoms were paralysis in a leg or wing. In the case of paralysis of the leg, one found a swelling of the sciatic nerve on *post-mortem* examination. Experiments in America suggested a virus infection, as a large number of outbreaks had been traced through the egg. The first outbreak he attended was one in which cockerels were affected. Mr. Downham had suggested that worms found in the cæcum might be the infection. Other people were of the opinion that coccidia which produced a toxin were the cause of the symptoms. He had come across worms in the cæcum, but not the large worms exhibited by Mr. Downham. At one farm where a large number of birds had been destroyed, the farmer stopped breeding from his own stock and found that he only lost two birds that year as against 1,000 lost the previous year. The duration of the illness was about four months, and it never occurred in second-year birds. Blindness was a common symptom.

Equine Œsophagotomy.

By R. H. Oddy, M.R.C.V.S.

Subject.—Aged cart mare.

History.—The mare was brought to the stable about 5 p.m. on July 1st, showing symptoms of choking. The carter was asked if he had any idea of the cause and produced pieces of potato which the mare had dropped. He told us that he had tried her with a bucket of water, part of which she drank, or rather attempted to drink, as it was immediately returned down the nostrils. The mare was now placed in her stall, her mouth, tongue, teeth, throat and neck were examined, but still the potato could not be located. She was watched for about an hour and as she did not show very distressing symptoms I left her, with the instructions that she had to have nothing to drink or eat but was to be watched and that, if symptoms became worse, I was to be notified.

Having no report, she was visited early next morning and found in the same condition as left the night before; I therefore left word for her to be watched and that she would be seen at noon.

At noon she was still the same, so I decided to give her half a grain arecoline hydrobromide hypodermically. This caused an increase in salivation, coughing and retching, and it was in one of these severe retchings that the potato was brought to view, low down in the neck. The hands were now placed on each side of the neck and the potato gradually worked up the neck. Try as one might, it was impossible to work the potato into the pharynx. I therefore tried to break it down by squeezing and crushing, but this was not successful, and I decided to operate.

The site was washed with disinfectant and water, then the potato was fixed in position with a sharp probe, which was plunged through the skin into the potato.

A drachm of 5 per cent. solution of cocaine was injected into the skin in four or five places.

An attendant placed his hands on the opposite side of the neck and pressed against the potato. An incision was now made through the skin from the probe to one extremity of the potato until the œsophagus came into view. This being arrived at, the skin incision was carried to the other extremity of the potato.

The loose connective tissue was broken down and the œsophagus drawn out, just sufficiently to enable one to operate freely. An incision was now made into the œsophagus just large enough to allow of the extraction of the potato—this incision was made as high as possible, so that when the œsophagus was in its natural position the wound would be as horizontal as possible.

The œsophageal wound was now washed and sutured with catgut—using Lembert sutures.

It was then mopped with dry cotton wool and the mare given a bucket of water to drink. The reason for doing this was to see if there was any passage of water through the wound. As this proved negative, the skin wound was sutured in the usual way. Instructions were left that the mare had to have nothing to eat or drink until seen next day.

Next day she was looking for food, so I gave her another bucket of water. This she drank quite willingly and without difficulty, so I left instructions that she could have hay tea, but it had to be strained through fine muslin. The object in doing this was to prevent, if possible, any foreign matter getting into the wound.

There was considerable tumefaction and the wound was discharging freely. It was therefore bathed with warm water night and morning. On the third day the mare was off food, coughing and discharging freely from the nose; temperature and pulse up. This I put down to bronchopneumonia, which responded readily to treatment. The neck was about the same as the day before—treatment same for the next three or four days. The discharge was now copious and offensive; two or three stitches were therefore taken out of the skin wound, and the lower part plugged with gauze. Still the discharge continued and with it small pieces of decomposing tissue. About the tenth day, whilst dressing the wound, a piece of decomposing tissue, about six inches in length, came away. After that the wound healed up readily.

Food.—Whilst the wound was discharging, the mare had sloppy food, linseed tea, hay tea, oatmeal gruel and all the time she was fed from the floor.

On August 4th a message was sent that the mare was choking again; on arrival she was right again, but for about a month she would have these periodic bouts of choking, although she was fed on the same food all the time, which was scalded bran and stewed oats only.

During this time she lost flesh rapidly and it took about a month to get her in fair condition, but still she showed no more signs of choking and was getting on to practically normal food. She went on gradually improving and now she is doing her ordinary work and having corn like the other horses, except that she has to have it damped.

Metacarpal Constriction Necrosis in a Terrier.

By J. H. White, M.R.C.V.S.

Subject.—A cross-bred male terrier, aged 4 years.

History.—This dog was brought to me on August 24th, 1930. He was lame on the near fore foot. The owner told me that he had been lame for some months and that the dog had been treated for a suppurative condition of the foot. This had healed under treatment and later had broken out again.

Examination.—Examination of the affected foot revealed the presence of a slight swelling situated over the second metacarpal bone about the junction of the upper and middle thirds. There was no pain. It was decided to have an X-ray and, following examination of the foot, this was carried out on August 28th. The radiogram revealed the following abnormal features :—

(1) A complete loss of bone substance of the fifth metacarpal bone beginning just below the proscenial epyphysis and extending downwards for 3/16 in.

(2) A loss of bone substance affecting the second and third metacarpal bones at the junction of upper and middle two-thirds.

At this point the owners had to go away, and as this condition had been in existence for so long it was decided that another two or three weeks would not affect the condition seriously. Also, an attempt was made to secure further history of any injuries, but this was unsuccessful.

On September 24th the dog was again brought to me, and at the site of the swelling there was distinct increase in size and evidence of pus formation. The abscess was opened and it was found that a probe could be passed from front to rear of the foot.

Previously I had mentioned the case to my friend Mr. Pillers; he had examined the radiograms with me, and we had decided to use an autogenous vaccine and also to operate and remove and curette any diseased bone.

On October 6th the vaccine was used and on October 14th the dog was admitted to my Infirmary.

On October 15th it was decided to operate and I asked Mr. Pillers if he would be the surgeon.

Operation.—The operation was performed with the dog under a general anæsthetic. Mr. Pillers made his first incision over the fifth metacarpal bone. He removed the lower end of the bone, and when he removed a small portion of the upper end of the fifth metacarpal bone, which is attached to the carpus, and was cleaning up the exterior ligaments preparatory to removing the bone, he discovered an elastic band, intact, and running at right angles to the direction of the foot, which band he removed. His second incision was over the centre of the second and third metacarpal bones, and he curetted the necrosed portions of bone. Both incisions were sutured with simple uninterrupted sutures, and the dog made an uneventful recovery.

This information was given to the owners and they then told us that when the dog was first under treatment the veterinary surgeon had said that the condition looked as though it might have been due to a tight band.

After discovery of the elastic band it was easy to see how the loss of bone substance had occurred, and that the second metacarpal bone had healed whilst the elastic band was starting to cause necrosis of the third metacarpal bone.

I had the dog in as a boarder a few weeks ago and there is now no sign of lameness.

Œsophageal Obstruction in a Cairn.

By J. H. White, M.R.C.V.S.

Subject.—A male Cairn terrier, aged 18 months.

History.—The owners rang up on January 15th and asked me to call and see the dog. I was out at the time and was not able to go there until the evening.

When I arrived the owner told me that the dog was much better—the animal was cross and the owner was one of those nervous women who are afraid of their own dogs. As a result, she would neither allow me to handle the dog nor would she hold it herself. She gave me the following history—the dog had been ill for a week and they thought that he had swallowed a bone. This day he had made attempts to get rid of something, but later in the day he was much better. I advised soft food and asked her to ring me up if any change in his condition occurred.

On January 20th they informed me that he was worse and he was brought to my infirmary.

Examination.—Examination revealed that the dog was persistently glutting. On passing a probang it was discovered that there was an obstruction about the entrance to the stomach. However, by careful manipulation it was possible to pass this obstacle.

The dog was given liquid food, but no improvement took place. The glutting became worse and respiratory symptoms were noticed.

On January 30th it was decided to have an X-ray examination made, and this was done by Dr. Mather, of Rodney Street. A radiogram was made of the thorax and abdomen, and no foreign body was found to be present.

The dog was given a barium meal and again X-rayed. This time the radiogram was very different and I give Dr. Mather's report, which was as follows:—

"I made an X-ray examination of the œsophagus and upper abdomen of this dog on the 30th ult.

"(1) No metallic foreign body or opaque bone is present in the œsophagus.

"(2) After the swallowing of opaque food the radiogram shows (*a*) a definite 'hold up' (stricture) at the extreme lower end of the œsophagus; (*b*) passage of the opaque food into the posterior mediastinum and into the bronchi, pointing to a fistula of the œsophagus into the mediastinum and bronchi.

"Two radiograms attached of the œsophagus and stomach (1) before swallowing opaque food and (2) after swallowing opaque food."

We kept the dog until February 4th and his condition became gradually worse, particularly the respiratory symptoms. It now became evident that the dog was suffering from a broncho-pneumonia. I advised the owners that recovery was impossible and, acting on my advice, they authorised me to destroy the dog.

Post-mortem Examination.—Dr. Mather was present at this examination. On opening the thorax the dilatation in the œsophagus was found and also the fistula. The thoracic portion of the œsophagus was then slit open and in the dilatation was discovered a piece of bone. The membrane of the œsophagus was ulcerated where the bone had been in contact. Examination of the lungs revealed an extensive broncho-pneumonia.

The radiologist stated that the failure of the examination to reveal the presence of the bone was due to movement both of the heart and of the patient itself. The bone is exhibited and also a radiogram showing the bone compared with a vertebra from the dead dog.

Two Cases of Mistaken Diagnosis.

By Warwick Fowle, M.R.C.V.S.

Case 1.—The subject was an Airedale dog, 10 months old. There was a discharge from a nostril and distemper was diagnosed. Treated as for distemper, and two days afterwards found the dog bleeding from a nostril. The dog's temperature was normal and I concluded that the condition was linguatula. I gave a pinch of snuff and, on the dog sneezing, two "worms" came away. I then thought the dog was cured, but actually it was still in a bad way. On a further visit being made, snuff was again administered and two more specimens, which I now exhibit, came away.

Case II.—In this case flexor tendon lameness was diagnosed, the horse being so lame that it could not put its leg to the ground. The temperature was 101°, the pulse slow, and the breath offensive. I suspected calculi as the cause. Arecoline was injected and at the same time ½ gr. strychnine was given. It had very little effect and the dose was repeated, but nothing happened except a little sweating. The animal was eventually destroyed and found to be suffering from tetanus. All precautions had been taken, such as sterilisation of all instruments. On *post-mortem* examination two calculi—8 lb. and 8¼ lb. respectively—were found, and in one was a piece of wire and in the other nothing at all. The one in which the wire was found was stratified, and the other was homogeneous. It was a cause of wonder to me why there should be such a great difference between the two calculi.

Discussion.

The President suggested that the specimens and cases presented at the meeting should be discussed in the order that they were given.

Mr. G. Mayall asked, concerning the poultry condition presented by Mr. Downham and Mr. Marginson, if there was any particular condition under which the birds were kept which would lead one to suspect that conditions were the cause of the trouble. He, personally, had not come across the disease.

Mr. Marginson replied that the conditions under which the poultry were kept were good.

Mr Curbishley congratulated Mr. Oddy on the success of his operation of equine œsophagotomy, and said he had heard of other veterinary surgeons attempting similar operations, but not with such good results.

With reference to Mr. White's cases, Mr. Oddy suggested that, in the second case, if the dog had been given a dose of apomorphine it might have produced sickness which would have brought up the bone.

Mr. Mayall asked if there was any persistent vomiting and if the animal took food before the X-ray photograph was taken.

Mr. White said some time had elapsed before he first saw the dog, and then the bone was in the chest cavity. He would hesitate to give apomorphine whilst the bone was there, and he did not risk it. He thought it was a hopeless case, the bone being in the animal's throat for a week or ten days before he saw it. It then went into the thoracic region and the animal took liquid nourishment.

Mr. Curbishley stated he had a case some years ago where a dog swallowed some of the vertebræ of a rabbit, and the spines of the vertebræ became fixed at the end of the stomach. The dog took liquid nourishment and thrived for a long time. The bone did not move and eventually the animal had to be destroyed.

Tuberculosis Vaccines.

"After further consideration, the Royal Agricultural Society has decided not to carry out its own test of Mr. Spahlinger's vaccine, for which success is claimed as a means of immunising calves against tuberculous infection," writes the Agricultural Correspondent of *The Times*. "The Council feels that no useful purpose would be served by duplicating the official test which is now being undertaken by the Ministry of Agriculture in Northern Ireland. Sir Edward Archdale has stated in a letter to *The Times* (published on April 20th) that his Department has completed arrangements to make a thorough trial of the immunising powers of this vaccine under proper scientific observation. The Royal Agricultural Society proposes to keep in close touch by asking Dr. Minett to visit the experimental farm periodically and report on the progress of the tests. The Government of Northern Ireland deserves the thanks of stock breeders for taking up this work so promptly. Our own Ministry of Agriculture, it will be recalled, felt precluded from affording an official test to Mr. Spahlinger's vaccine."

Abstracts.

[**Contributions to the Study of Animal Dermatocycoses, with special reference to the question of Immunity.** Staff Veterinary Dr. R. Lücke. *Zeitschrift für Veterinärkunde.* June, 1930.]

1. General.

Sabouraud's unremitting work on Dermatocycoses is still pre-eminent. He defines three main groups, Microsporon, Trichophyton and Achorion. The varieties of these groups affecting domesticated animals, etc., are:—

Microsporon equinum, horse, dog; *lanosum,* dog; *felineum,* cat.

Trichophyton gypseum, horse, ox, dog; *faviforme,* horse, ox; *equinum,* horse, dog; *caninum,* dog.

Achorion gypseum, horse; *violaceum,* horse; *schoenleinii,* cat, rabbit; *gallinæ,* fowl; *Oospora canina,* dog.

Clinically, there is little difference between these varieties. Microscopically and culturally, definite characters can be established in certain forms and diagnosis arrived at.

2. Growth on Solid Media.

Skin fungi grow on media which are rich in carbohydrates and poor in proteins at room and body temperature in daylight and in the dark. Sabouraud's "experimental medium" consists of:—peptone, 1: maltose, 4: agar, 1·8: aqua, 100. His "conservation medium" is:—peptone, 3: agar, 1·8: aqua, 100. Petri dishes are more suitable than sloped tubes. Mere application of the material to the medium suffices.

It has been recently established that a moist, repeatedly sterilised mixture of chopped straw, grains of corn, oat chaff, hairs, horse dung and hoof parings will support the growth of a horse trichophyton, and it is therefore held that the Dermatophytes affecting animals can not only exist but can actually increase in straw and fodder.

3. Immunity Against Animal Dermatocycoses.

The guinea-pig is the most suitable experimental animal. The best research method of examination is to take a large piece of culture from the edge of a colony, triturate it between two pieces of sand paper and with one of the pieces of paper rub a shaved or clipped site on a guinea-pig's back till the skin reddens.

In the writer's experiments reaction to the fungus started on the average at nine days and spontaneous healing generally occurred at 28 days. Of the inoculated animals, 34 out of 40 became infected. A fortnight after resolution the same 34 animals were treated in the same way with the same dose of the same strain, eight controls being employed. Of the 34 guinea-pigs 20 developed lesions; all the controls were affected.

The re-infected animals at the seventh day showed intense inflammation followed in a day or two by scurf and scab formation. Crusts and pus did not appear, there was but slight spread and recovery was almost complete in 14 days. Relative immunity had doubtless been conferred.

With regard to the question of the presence in the blood of infected animals of antibodies, until 1918 it was held that immunity was cellular, *i.e.,* confined to the skin cells. Since that time sera have been tested by the complement fixation method with positive results. As antigen the writer employed "Trichopytin Hoechst" and fungus emulsion, prepared according to the Brocq-Rousseau method, modified by using alcohol instead of normal saline. The immune bodies were, up to a point, specific. Horses and cattle suffering from *Herpes tonsurans* also show a positive complement fixation reaction, but without any specific character. The degree of inhibition bears no relation to the severity of the attack.

Trichophytin Hoechst did not give satisfactory results as a diagnostic agent.

4. Trichorrexis Nodosa.

This condition in the horse, allied to a Dermatocycosis, is characterised by knotting, splitting and breaking of the hairs. It has occasionally occurred in the ox and pig. It is probably due to a bacterium and not, as suggested by Famach, to *Trichosporon equinum.*

H. H.

[**Arecolin, a Rapid Tænifuge for Dogs.** Veterinary General Wohler. *Zeitschrift für Veterinärkunde.* June, 1930.]

Arecolin hydrobromide was administered *per os* in a watery solution containing raspberry juice to six Dachshunds suffering from tapeworms, the dose being 2 mg. per kilo. body weight.

In each case action of the bowels occurred in about 10 minutes. Initial hard motions were followed by softer ones containing the parasites.

The dogs were fasted for 22 hours before dosing. One dog vomited and received a second dose next day without ill effects. A second showed discomfort some hours afterwards and was given a dose of tinct. opii. The remainder showed no untoward symptoms whatever.

Arecolin is a convenient, prompt and effective agent, not heroic in its effects.

H. H.

[**An Abomasal Ulcer in a Steer, with Rupture into the Thorax.** Zaruba, K., *Prager Arch. f. Tiermed,* Part B, No. 3. 1930.]

The author gives a case record of a steer which he thought was suffering from traumatic peritonitis due to the penetration of the reticulum by a foreign body. As treatment was unsuccessful the animal was killed and autopsy showed only a perforation of about 2-in. diameter in the anterior wall of the abomasum with a smaller opening directly opposite it in the diaphragm. Several small flint stones were found there. The local pleura was enormously thickened and projected into the thorax, interfering with the function of the lungs. The affected tissues were necrotic from the presence of abomasal contents and death was thus attributed to septic absorption.

J. T. E.

[**The Visible Pathological Dilatations of Veins in Domesticated Animals: Phlebectasy, Varices, Varicose Veins.** Roder, O., *B.T.W.*, xxxxvi, No. 40, pp. 735-741.]

This is a review of clinical cases recorded in literature for a number of years, preceded by a general discussion on the causes and origin of these pathological conditions. There are five figures in the text showing a case of varicose

Municipal Report.

Birmingham Veterinary Officer's Annual Report for 1930.

This important report shows that 360,393 animals were slaughtered in the public slaughter-houses and 274,150 animals in 96 private slaughter-houses during the year, and that 713 tons of diseased and unsound food, including fish, poultry, game, fruit, vegetables and miscellaneous articles were destroyed as unfit for human food. Residual value in a sum of £626 was returned to owners of food destroyed.

Tuberculosis was, as usual, the chief cause for destruction. The number of carcasses destroyed is given, but it would have added to the value of the report if the percentage affection of each species had been stated; doubtless this ommision is accounted for solely by the extra labour in keeping daily statistics. It is interesting to note the great improvement in the condition of imported mutton in reference to the disease, caseous lymphadenitis. The Corporation still adheres to its previous opinion that the old method of slaughter is at least as good as the mechanical method.

Diseases of Animals Acts.—Two cases of anthrax, six cases of parasitic mange, and 22 of swine fever were dealt with and confirmed by the Ministry of Agriculture. Under the Tuberculosis Order 12 cows were slaughtered, four being affected with tuberculous mastitis, three with tuberculous emaciation and five with chronic cough. £37 15s. was paid as compensation to owners and salvage amounted to £15 2s. Two hundred and nineteen animals were found dead at the railway stations: 207 of these were pigs, eight sheep and four cattle.

Importation of Animals Act.—Animals numbering 29,330 arrived from Ireland. In addition, 76,446 fat pigs were received in private slaughter-houses—an increase of 20,000 over the figures for 1929.

Horse Department.—The stud consists of 460 horses. The total weekly cost of upkeep per animal was 31s. 5d.; of this 12s. 10d. was for feeding and bedding only, compared with 10s. 1d. for 1914: an increase of 27·5 per cent.

Public Health Work.—Under the heading of "Inspection of Cows and Cowsheds," it is shown that there were 98 dairy farms, with 1,309 cows in the City area. Thirty-five cases of acute catarrhal mastitis came under observation. Samples of milk to the number of 185 were taken from city dairies, of which 11 mixed samples and 11 individual samples contained living tubercle bacilli. In addition, 1,699 mixed samples were taken from country supplies. Of these, 6·2 per cent. were found infected with tubercle bacilli. It is interesting to note that "the testing of two herds which have been included in the Birmingham Corporation Scheme was discontinued owing to the high percentage of animals failing to pass the test. Five owners of other herds applied to be admitted to the Scheme, but in only two cases were their herds suitable and these have been admitted to the Scheme." In connection with the three herds tested but not brought into the Scheme, the owners decided that, owing to the high percentage of animals which failed to pass the preliminary test, they could not see their way to comply with the conditions of the Scheme.

The Report, taken as a whole, is a record of a large and varied amount of work well done.

T. D. Y.

Colonial Reports.

Annual Report of the Civil Veterinary Department, United Provinces, India, for 1929-30.*

Staff.—The Director, Captain Hickey, returned from leave during the year, relieving Captain Priston, who had been officiating in the appointment. In addition to the Director, the staff consisted of two Superintendents, three Deputy Superintendents and 208 members of the subordinate establishment, one less than in the previous year. A largely increased staff is contemplated when financial circumstances permit, but there is no indication that it is proposed to employ more personnel at present. Arrangements for future recruitment are referred to in the report, as it is stated that 14 stipendiary students are being educated at the Bengal Veterinary College. Unless private students are coming forward also it seems clear that the strength of the personnel is unlikely to be appreciably increased in the near future.

Disease.—The deaths from cattle disease were nearly double the figures of the previous year, rinderpest being especially prevalent. Inoculations numbering 157,677 were carried out against this disease and, according to the report, the treatment is meeting with increased favour from stock owners. No mention is made of the serum-simultaneous method, although it was stated in the previous year that a beginning had been made with it. A number of cases of rinderpest were treated with injections of iodine and further experiments in this connection are foreshadowed.

Foot-and-mouth disease was ordinarily prevalent. Haemorrhagic septicæmia caused 7,884 deaths and was severe in three districts. Inoculations to the number of 55,635 were carried out against this disease. The mortality from blackquarter and anthrax was less than in the previous year: 5,708 inoculations were carried out against the former disease with satisfactory results, and 1,766 against the latter.

There were 165 hospitals and dispensaries at work compared with 160 in the previous year. There was a satisfactory increase in the number of cases both at veterinary hospitals and on tour. Special attention is being paid to the castration of scrub bulls.

* Printed by the Superintendent, Government Press, United Provinces, Allahabad; price, Rs. 2. Twenty-eight pages, with a map, two pages of illustrations and many statistical tables.

veins in a horse, a congenital varix of *v. jugularis* in a horse, two drawings of a normal and dilated wall of *v. jugularis*, and a diagram showing the distribution of veins in horse and man. The author says that animals suffer less than man from these diseases, because the distribution of hydrostatic pressure in their venous system is favoured by the conformation of their body. Thoroughbred horses and cattle are the animals chiefly subject to these conditions. Cases of varices developing in the fœtus also have been recorded. The paper has a list of 39 references appended.

H. F.

Research.—Considerable diagnostic and experimental work was done at the headquarters and central laboratories, and anti-rabie treatment has been taken up at the former institution.

Genetics.—Horse and mule breeding continued to receive attention in certain districts. Cattle breeding operations do not appear to come within the scope of the Department's activities.

General.—Work in connection with fairs and shows and village propaganda is recorded in the report. Lectures were given by the veterinary personnel to students at a number of schools in the Province.

The Director refers to the marked increase in the activities of the Department in many directions and points out the need for an increase of staff.

He states that better arrangements are required for the storage and supply of sera and he refers to the necessity for a better scheme for reporting outbreaks of disease in the districts.

The Government of the United Provinces, in acknowledging the report, records that it has been read with interest and expresses thanks to the officers for their work during the year.

The Annual Reports of the Civil Veterinary Department, Bengal, & Bengal Veterinary College, for 1929-30.*

The much-needed development of the work in the districts has been indefinitely postponed owing to financial stringency, but in spite of the depressing conditions useful activity is fully demonstrated in the report.

Disease.—The mortality from rinderpest was severe in all districts, and inoculation campaigns were organised as far as possible. The serum-simultaneous method has been successfully extended, but there is room for further development in this direction. A free supply of serum has now been sanctioned by the local Government. This is a valuable concession to local bodies which have hitherto had to bear the expense. In return it is hoped that these bodies will see their way to provide more money for local veterinary work.

The demonstration train organised last year has continued to be useful for purposes of propaganda. Conditions are not regarded as yet favourable to the institution of compulsory methods for dealing with eradication of contagious diseases among animals.

General.—The number of hospitals and dispensaries is admittedly very inadequate, but it is reported that signs of increasing interest on the part of local bodies and private persons in this connection are evinced. There is a great shortage of stud bulls in the Province and the castration of scrub bulls requires to be developed.

. . . . .

The report of the Veterinary College is rather detailed and includes the department for the control of epizootic diseases of animals in Calcutta. There was an increase in the number of applications for admission to the College from various parts of India and there appears to be a strong demand for veterinary education in Bengal itself. The agricultural section of the College has been extended and an extra course of lectures and practical studies in meat and milk inspection and the fundamental principles of genetics, dairy farming and poultry keeping has been instituted. The Government of Bengal records its appreciation of the good work done by Mr. Kerr, the Director, and by Mr. MacGregor, the Principal, and Mr. Davies, the Vice-Principal of the College. Mr. Davies has since been appointed to the Principalship of the Veterinary College at Patna.

* Bengal Secretariat Book Depôt, Calcutta. Price 2s.

N.V.M.A. Divisional Reports.

Royal Counties Division.

Meeting at Aylesbury.

The ancient Bull's Head Hotel, in the historic Buckinghamshire town of Aylesbury, was the scene of a most successful meeting of the Royal Counties Division, N.V.M.A. on the afternoon of Friday, April 24th, 1931.

In the absence (*en route* for America) of the President, Major G. W. Dunkin, the chair was occuped by his predecessor in office, Major A. C. Duncan, of Cirencester, and there were also present: Mr. A. J. Baxter, Mr. J. Bell, Captain H. B. Collet, Mr. A. C. Dixon, Major J. J. Dunlop, Mr. E. J. Heather, Captain J. R. Hewer, Lt.-Col. H. C. Jagger, Major Henry G. Lepper, Mr. T. W. Lepper, Captain W. L. Little, Mr. J. W. McIntosh, Major G. S. Sutton, Major F. J. Taylor, Captain F. T. Trewin, Captain Sidney Villar, Messrs. F. W. Willett, J. Willett, R. A. Willett and T. B. Yarrow. Dr. F. C. Minnett and Mr. T. A. R. Chipperfield were present as visitors.

At the commencement of the proceedings, Major A. C. Duncan said that he had to apologise on behalf of Major Dunkin, for the President's absence that day and on his own behalf, for his reappearance in the capacity of Chairman. He was sure they all wished their President "God speed" on his journey to America and hoped he would return safely to them in time for their next meeting. (Hear, hear.)

The minutes of the previous meeting, which had been published in the *Record*, were taken as read and were confirmed and signed.

Correspondence.

(1) From the following members, apologising for their inability to attend the meeting:—Captain W. A. Austin, Mr. R. E. C. Bullen, Professor J. B. Buxton, Mr. J. A. Craft, Mr. A. V. Franklin, Professor F. T. G. Hobday, Mr. C. P. Inglis, Major-General Sir John Moore, Lieut.-Colonel G. Rees-Mogg, Lieut.-Colonel P. J. Simpson, Major R. C. Tennant, Colonel G. K. Walker and Major R. F. Wall.

The Chairman observed that, in connection with those apologies for absence, they would note amongst the absentees the President of the N.V.M.A. He expected that it would be their wish to congratulate their old member, Colonel P. J. Simpson—who had been President of their Society, Secretary of their Society and a great many other things to them for many years—on being elected to the important position of President of the "National." (Applause.)

(2) From the President, in the course of which Major Dunkin said:—

"I am very sorry that I cannot possibly attend our next meeting at Aylesbury. I sail for America on or about the 24th, and even if I am not actually gone I shall be kept so busy getting ready that I feel it would be better for the Society if definite arrangements were made for a deputy. With this object in view I am therefore writing to-day to my predecessor asking him kindly to act for me.

"Meanwhile, I shall be grateful if you will kindly convey to the meeting my sincere regrets at not being with them and my best wishes for the success of the meeting.

"Dr. Minett will give those attending a full bill of fare, for there are few people in this country who have worked so consistently or hard at the baffling and important subject of bovine mastitis.

"I am sorry not to be able to partake of Mr. Collet's hospitality. It is exceedingly kind of him to invite us."

(3) From Captain W. K. Townson and Captain E. C. Winter, acknowledging, with thanks, the receipt of messages of sympathy sent from the last meeting of the Division, at which time they were indisposed.

The members were relieved to learn from the Chairman that Mr. Ernest Wilkinson, of Witney, who met with a serious accident last year, was now safely on the road to recovery, after having been on the danger list for many months.

(4) From the Secretary of the N.V.M.A. (*a*) acknowledging the receipt of the resolution sent from the last meeting of the Division with regard to the appointment of Veterinary Advisory Officers, and (*b*) stating that the resolution was laid before Council N.V.M.A. at the April meeting of that body, and conveying the warmest thanks of the Council for the support given by the Division's resolution to the steps already taken in the matter by the N.V.M.A.

(5) From the Secretary of the N.V.M.A., enclosing and supporting a communication from the Secretary, R.C.V.S. (also read) urging the discontinuance, on the part of any members of the profession who might be pursuing it, of the reprehensible practice of inserting, on their notepaper and account forms, letters other than those indicative of the possession of a professional or academic qualification.

The Chairman thought that, in that connection, they might well support the views expressed in the communications which had been read to them from the Secretaries of the N.V.M.A. and R.C.V.S. As the Division was not an administrative body, it could not take any particular action, other than to endorse the expression of disapproval which had been ventilated. It was, of course, a general matter and one which was being brought to the notice of all the Divisions of the "National."

Mr. J. W. McIntosh said that he would like to support the views put forward by the Chairman. He had much pleasure in proposing that they appeal to their members to refrain from a use of letters which had been regarded as objectionable by the Royal College and the N.V.M.A., and which use was undoubtedly misleading, too, so far as the general public were concerned. The proposition was seconded by Major J. J. Dunlop and carried unanimously.

(6) From the Secretary of the National Horse Association of Great Britain, enclosing a short account of the Association's activities in connection with Bills before Parliament which affect the horse and its use; also, the report of the Council to the Annual General meeting. [The information contained in these documents was also placed before the Central Division, N.V.M.A. at the March meeting of that Society, and readers interested are referred to the *Veterinary Record* of March 28th, pp. 347 and 348, in which this material received publication—Ed.]

The Chairman commented that, as the members knew, the Division gave a small subscription annually to the National Horse Association, and he thought it was indeed money well spent. (Hear, hear.) He hardly thought that anyone would begrudge the support they gave to that Association, which was doing a very great deal of excellent work on behalf of the horse. (Applause.)

Mr. McIntosh, speaking as a member of the Council of the National Horse Association, observed that that body was now becoming a very important one and had been recognised by Government and "the powers that be" as a body that required to be consulted on all matters affecting the interests of horse owners. Having recounted some of the information contained in the documents before the meeting, Mr. McIntosh concluded by saying that, as veterinarians and as a veterinary society, they should support the Association whole-heartedly in the measures they were endeavouring to carry out. In these times, when the tendency was for horses to be dispensed with, or their use penalised, particularly in the towns, it was incumbent upon the profession to support an institution of that kind. (Applause.)

The Title of the Division.

The next business before the meeting was "To discuss the advisability, or otherwise, of changing the existing title of the Association"—the existing title being "The Royal Counties Veterinary Medical Association."

Major F. J. Taylor said that he thought he was responsible for the appearance of that item on the agenda: for many years he had felt that the word "Medical" was unnecessarily borrowed from the sister profession. The lay mind, as a rule, looked upon the expression "medical profession" as applying only to the treatment of human disease and he could not see that it was directly associated with their own profession. On looking at page 382 of the *Register*, and revising the list of Divisions, they would find that of 35 English Divisions six were not using the word "medical" in their title, while 12 out of 17 colonial Divisions were not using it.

He proposed, therefore, that they delete the word "Medical" from the title of their Division, for he was convinced that the word was generally accepted as applying only to the sister profession in the mind of the public. In the dictionary the word "veterinary" was now described as pertaining to the treatment of domesticated animals and this, he hoped they would agree, fully explained the nature and objects of their Division.

Mr. McIntosh said that, although he had no particular views in connection with the matter, he seconded the proposition, as he thought it would be as well if the proposal were discussed.

Mr. F. W. Willett saw no reason whatever for the proposed alteration of title. There had been much talk of comparative medicine and, as they knew, some of their members were members of the Royal Society of Medicine. Veterinary medicine and human medicine were branches of the one science of medicine.

Major H. G. Lepper expressed entire agreement with the remarks of Mr. Willett. Let them leave well alone:

the society to which they belonged had progressed with wonderful strides and he could not agree in any respect with the remarks of Major Taylor. It was never nice or good policy in business to alter the name of a good firm, and he did not think it would be wise in their case. (Hear, hear.)

Mr. J. Willett proposed, as an amendment, "That the existing name of the Division be retained." He did not agree with the proposer of the motion that the term "Medical" in their title was redundant, or misplaced, for it did, in fact, describe them—their members had been to college to study veterinary medicine and they now practised it.

The amendment was seconded by Captain J. R. Hewer.

Captain W. L. Little enquired, if they were going to retain the word "Medical" in the title, why should they not include the word "Surgical," which was equally applicable to them? Although he did not wish to see the old name altered, he thought that point worthy of consideration. The whole thing was thoroughly thrashed out at the time that the "National" title was changed, and he thought that, until the N.V.M.A. deleted the word "Medical" from their title, the Division should not do so.

The Chairman observed, amid applause, that it was not a small matter to change the name of an Association that had been in existence for a very long time. He must say, as a consistent Conservative, that he should like to leave things as they were unless there was a very good reason for making a change. He had in his mind several reasons why he thought they should preserve their title. It was all very well for the sister profession to arrogate to themselves the use of the word "medical," but he did not see why they should; he did not see why the lay mind should be allowed to assume that nobody else had the right to use the word. If that veterinary society did decide to make that change he did not see why the medical societies should not be asked to rule out the word "Medical" and say that they were merely "Human" societies. (Laughter.)

The amendment was, of course, a direct negative, and he would ask them to vote on the original resolution.

The resolution was lost by an overwhelming majority.

Major Taylor asked, if it were so important that the word "Medical" should be retained, why was there not a ruling from the Council, N.V.M.A., preventing 18 out of 32 Divisions from eliminating the word "Medical" entirely from their divisional titles?

The Chairman: "Our representatives on the Council of the 'National' should deal with that matter, I think."

Exhibits, Morbid Specimens and Cases of Interest.

Mr. R. A. Willett exhibited a infra-red ray lamp, having two burners with different wave-lengths—one long and one short. This lamp, said Mr. Willett, was being used with good results in human practice. One of his clients, a lady of 70 years of age, had what was practically ankylosis of the spine, and when he saw her before treatment with this lamp was applied she was in bed on a flat board and could not move. She now walked about, as well as he did. The short wave-length, which had a penetration into tissue of about 2-in., was recommended for superficial skin complaints, the other wave-length was used for deep-seated conditions.

Apparently the great advantage of this lamp was that no matter how long one kept it on one could not do any harm with it, whereas the majority of ray lamps caused a great deal of trouble. Another advantage was that the cost of the lamp had just been reduced from 19 to six guineas. The firm also put out a sun-ray lamp, which also was very efficient and which only cost nine guineas, though that, too, was sold at 19 guineas only six months ago. He did not know the actual makers.

Mr. F. W. Willett added that the lamp had been left with them for a fortnight, only £1 being paid as deposit: that spoke rather well for the faith in it which the makers must have. The firm had sold a large number of these infra-red lamps, and, as yet, had not had to take any back.

Mr. E. J. Heather exhibited the subject (a wire-haired terrier) and X-ray photographs of a case of complete double-sided congenital dislocation of the radius and ulna, with fracture of the off fore radius two-thirds of the distance below the epiphysis of the bone.

The dog was brought to him when it was twelve hours old and its elbow joints were just as much abducted as they were now. He told the owner to leave the dog for a little time, and he had brought it again that day. Just before he did so, the owner had dropped it on the floor of the car heavily, and it had been going rather lame since. X-ray revealed the true nature of the condition, and the fracture was rather interesting, in that it was only revealed by the picture—it was not discoverable by manipulation of the bones. In view of the reports of statements to the contrary that had appeared in the *Veterinary Record* during the past few weeks, it was interesting to have a case in which X-ray was of very decided value.

He did not think that there was anything that could be done for the dog.

Captain J. R. Hewer showed a portion of the cleansing of a mare, the exhibit being somewhat hardened through being kept in formalin. The members would observe a number of curious deposits on the inner surface, while on the other side the arteries were all thickened, as though it were a case of arterio-sclerosis.

The subject was a young, thoroughbred mare, and he was called to the case, which was one of difficult foaling. The foal was deformed, with bent forelegs and the mare had a rupture of the womb at the floor. He had great difficulty in straightening the first fore leg, and he delivered the foal with the leg bent back at the knee.

Captain H. B. Collet asked for enlightenment in regard to a case he had to see three weeks ago—a Scottish terrier bitch, two years old. The owner said the appetite was capricious, and on examination of the mouth he (Captain Collet) found that all the teeth were loose, but there was no sign of diarrhœa. There was a swelling on the facial bone, just below the eye, apparently containing fluid. It had been receiving cod liver oil, and radiostol was tried, but the animal died.

The dog was sent in for *post-mortem* examination. He found that the teeth were very dirty, with a brownish discharge. All the internal organs were more or less normal, but the stomach and the first part of the intestines were rather injected.

Since last September the dog had been drinking a good

deal of water and had had difficulty in eating her food. Perhaps someone could tell him what the condition was.

In reply to Major Taylor, there was no sign of rickets of the limbs. He did think of Stuttgart disease, but there was no vomition; there was no recession of the gums, and the teeth were quite normal in appearance, except that they were exceedingly dirty. Personally, he thought the condition was due to some deficiency—calcium deficiency, possibly.

The Chairman, having invited discussion of the cases presented, but without response, observed that, while it was apparent that they were very interested in those cases, the members had the customary and very proper diffidence of veterinary surgeons—they did not want to commit themselves. (Laughter.)

The lamp, no doubt, was a very useful thing, and he, for one, would like to try it.

Mr. Hewer's specimen was a most interesting one: here, again, he thought, that few of them would care to commit themselves to a definite opinion. It had been suggested by Mr. F. Willett that perhaps when Mr. Hewer had got a scraping from it examined he might let them know later on what was the nature of that deposit on the surface of the mare's cleansing.

There was little more to be said about the dog with the dislocated elbows. Then, with regard to the last dog, which was now deceased, nobody seemed to want to commit himself to an opinion on that either. He was particularly interested in that case, because he had one a little resembling it, though it was not dead yet. It had developed two curious swellings under the eye: he did not know what they were or what harm, if any, they were doing.

He thought it would be the wish of the members that gratitude should be expressed to those who had brought forward those interesting cases and exhibits. (Applause.) In that connection, might he say that it had been suggested that, in future, notice of intention to bring forward exhibits and morbid or other specimens should be given to the Hon. Secretary, in order that they might have some idea as to what they were going to see and perhaps more intelligently discuss it. That suggestion, of course, was not in any way intended to prevent members from bringing forward cases which had occurred close to the time of the meeting.

Next Meeting.—On the proposition of the Hon. Secretary, seconded by Mr. J. Willett, it was agreed to hold the next meeting at Aldershot, in July.

Any Other Business.

Mr. McIntosh said that, under that heading, he wished to bring forward a matter which he was sure would meet with the approval of the Society. It had to do with a gentleman who was a very keen member of that Society for some years, but whose activities were cut short owing to serious illness—he referred to Major Robin Catmur. Many of them remembered how very enthusiastically he threw himself into the work of their Division and of his profession, and it was only his serious illness which prevented his continuing to do so. Major Catmur was still far from well, and he thought it would be only a gracious and fitting act if they made him an Honorary Member of that Society, as an expression of their sympathy and of their appreciation of the splendid work he did on behalf of the Division. He proposed accordingly. (Loud applause.)

Mr. F. W. Willett seconded, and the Chairman described the proposal as a very happy thought on the part of Mr. McIntosh, and one with which they were all cordially in agreement.

The proposition was carried with acclamation.

Mr. J. Bell encouraged members to accept Major Catmur's services in connection with X-ray work, which the latter had recently taken up. The apparatus possessed by Major Catmur was a portable one, and there was no member of the profession who was better fitted to carry out such work.

The Hon. Secretary said that there was one item for discussion which was omitted from the agenda. The Council of the Division recommended that there should be set down on the agenda, for discussion at that meeting, an item as to the desirability or otherwise of showing on the agenda of their meetings that the Society was a Division of the N.V.M.A.,

Mr. J. Willett: "I move that that be done."

The motion was seconded by Major Dunlop, and carried without discussion.

Address by Dr. Minett.—The President said that their chief business that day was to hear Dr. F. C. Minett, of the Research Institute of Animal Pathology, Camden Town, speak to them on the subject of bovine mastitis. That was a subject which, no doubt, would appeal to everybody who came into contact with cows, and he had much pleasure in calling upon Dr. Minett to address them.

[A report of the address given by Dr. Minnett, M.B.E., M.R.C.V.S., and of the subsequent discussion thereupon, appears at the commencement of this issue of the *Record*.—Ed.]

Following Dr. Minett's reply, the Chairman, on behalf of the members, thanked him very warmly for his most interesting and instructive address and for his very able reply to the questions raised thereon.

The meeting concluded with a vote of thanks to the Chairman for his conduct of the proceedings, and to Captain H. B. Collet for his kindness in entertaining the company to tea—which provided a refreshing interlude midway through the proceedings.

H. Bell, *Hon. Secretary.*

The Brent Valley Bird Sanctuary.

The Bird Sanctuary Committee of the Selborne Society makes an urgent appeal for help in safeguarding the Brent Valley Bird Sanctuary. The founding of this reserve, the first of its kind, by the Selborne Society in 1902 set an example which has been widely followed, as the numerous nature reserves now in being attest, and many bird lovers wishing to make small sanctuaries of their gardens have been supplied by the society with boxes like those designed for the Brent Valley Sanctuary. In 1920, the bicentenary year of Gilbert White of Selborne, the sanctuary was bought as a memorial to the father of British field natural history.

The amenities of the Brent Valley Sanctuary will be safeguarded on the north and east by the welcome decision of the Middlesex County Council to keep adjoining fields as an open space. On the west, however, a factory has recently been built. Two fields on the south and south-east are now scheduled as factory sites, and unless the Selborne Society can buy them by June 1st the land will be sold.

Lancashire Division.*

Annual Meeting at Manchester.

The Annual Meeting of this Division was held at the Grand Hotel, Aytoun Street, Manchester, on Thursday, March 5th, 1931, at 3 p.m.

Mr. J. O. Powley was formally invited to take the chair by the retiring President, Mr. E. H. Curbishley, who expressed the hope that he would receive the full support of the members and that he would have a successful year of office.

The following members were present:—Messrs. J. O. Powley, E. H. Curbishley, F. Hopkin, W. Woods, J. Holroyd, R. C. Locke, G. H. Locke, J. Mackintosh, J. H. White, P. T. Lindsay, H. T. Matthews, Warwick Fowle, K. D. Downham, G. Mayall, R. H. Oddy, J. B. Chadwick, G. C. Lancaster, A. W. Noel Pillers, J. Spruell, H. Burrow, A. J. Wright, G. C. Marginson, and T. Millington.

Apologies for unavoidable absence were received from Messrs. J. Abson, T. Wilson, J. Cochrane-Dyet, A. B. Mattinson, H. Holroyd, Colonel Brittlebank and W. G. Burndred.

The minutes of the last Annual Meeting were taken as read.

Correspondence.

(1) From the Secretary of the National Veterinary Medical Association, with regard to increase of membership. It was proposed by Mr. Woods, seconded by Mr. Holroyd, and unanimously resolved that a Committee, composed of the President, Hon. Treasurer and Hon. Secretary, be appointed to deal with the subject.

(2) From Mr. Bateman, tendering his resignation from the Division. Mr. Bateman's resignation was accepted with regret.

(3) From Mr. J. Hughes, Tanyrallt, Welshpool, with regard to the loan of molar extractors. It was explained that the Society did not own such instruments, and Mr. G. H. Locke offered to loan a set to any member. The offer was accepted with thanks and the Secretary instructed to inform Mr. Hughes accordingly.

(4) From Mr. Henry Sumner, expressing appreciation of the honour accorded him in his election as Honorary Associate.

(5) From the Royal Sanitary Institute, with regard to the appointment of a delegate to attend the Congress at Glasgow in July next. It was resolved that consideration of the matter be postponed until the next meeting.

(6) From the Yorkshire Veterinary Medical Association intimating that the subject of the issue of a joint election circular would be considered at their next Council meeting.

Obituary.—Mr. Curbishley proposed and Mr. Pillers seconded a vote of condolence to the relatives of the late Mr. R. Shepherd, Middlewich, and the meeting paid tribute by standing in silence. A letter was read from Miss Shepherd expressing thanks to the Society for the wreath and expressions of sympathy.

Treasurer's Statement.—Mr. Noel Pillers referred to various items in the Balance Sheet, a copy of which had been sent to each member. Mr. Mayall proposed, Mr. Oddy seconded, and it was unanimously resolved, that the Financial Statement be adopted.

* Received for publication, May 4th, 1931.

Presidential Address.

Mr. Powley now addressed the meeting, from the Chair, in the following terms:—

In the first place, my thanks are due for the great honour shown in asking me to occupy your Presidential Chair for the ensuing twelve months, and in accepting this signal honour I fully realise the difficulties to be confronted in attempting to emulate the many eminent and well-known veterinarians who have preceded me.

Apparently, I have no choice in the matter of an address from the Chair on the first occasion on which it is your pleasure that I occupy it; that being so, it will be my endeavour not to weary you with a lengthy discourse.

My opening is in the form of a request, more particularly to the youth of the Society, to rally round the officials and each one begin the year by asking himself not "how much can I take out of the Society?" but how much he can put into it.

If it were possible to ensure that every member of this Division would carry on in this endeavour for the next twelve months, I would prophesy that the Lancashire Veterinary Medical Association would be second to none. Further, having begun the habit of giving instead of expecting to receive, the habit would tend to become fixed and be the means of perpetuating the success of the Association. There are sure to be members who ask what is meant by giving to the Association. To the few is the holding of office, to others the giving of their experiences at our meetings, but to the majority there simply remains the giving of their attendance at our deliberations, the deciding factor between success and failure of our meetings.

There has sprung up a custom, in these addresses, of reviewing the past or endeavouring to foretell the future; it is my purpose to indulge in a certain amount of stock-taking interspersed with a few random thoughts, adopting the view of the onlooker rather than of an active participant in the affairs of the profession.

The veterinary, like every other profession, is compelled to follow the lines of specialisation, and when specialisation occurs in a profession numerically so small as ours, the risks of cleavage are enormously increased, certain specialised sections tending to become attached to, or work under, the leadership of some branch of agriculture or medical science. Whether such cleavages would be of advantage or not, I am not prepared to say, but it is well that the contingencies mentioned should be borne in mind and cogitated on by the rank and file, with a view to visualising the effects on the profession as a whole.

One is simply reasserting a truism when one states that the general practitioner was and is the backbone of the profession, and not many years ago he was quite capable of dealing, in the ordinary course of his practice, with what small amount of legislative matter relating to animal diseases was enforced.

This age of mechanisation, with the phenomenally rapid daily increase in our methods of transport, demands more legislation to prevent the rapid spread of contagious animal disease, resulting in the need of men with specialised veterinary training to cope with it, always bearing in mind that disease recognises no parish, county, or even national

boundaries. Legislation on animal diseases to-day demands world-wide collaboration between veterinary scientists, and heads of Government Departments, thus necessitating what might be conveniently termed a mobile veterinary squad, such as in evidence to-day in the veterinary department of the Ministry of Agriculture and Fisheries.

Improved methods of research combined with extra knowledge, demand specialised Research Officers: couple this with the tendency to grade up and increase output in our flocks and herds, with the resultant overstocking in a fairly large percentage of cases (which can only lead to losses due to parasitism and infectious diseases), and the need for the collaboration of the Veterinary Research Officer with agricultural research workers and others is apparent. Whilst mentioning research, one sometimes wonders if our research workers in certain branches are sufficiently in touch with the practitioners on whom they are bound to rely for material on which to work. On the other hand, one can recall many cases in which the practitioner, having invoked the aid of the research worker, ceases to take further interest, not only with loss to himself, but the feeling in the mind of the client that he will seek the aid of the research worker direct instead of through the practitioner.

It can be stated generally that the profession is made up principally of the general practitioner, the Royal Army Veterinary Corps, the whole-time State Veterinary Officer, the whole-time Local Authority Veterinary Officer and veterinary research workers.

The general practitioner, of course, acts in a part-time capacity to both the Ministry of Agriculture and the local authorities.

There seems little doubt that the whole-time county veterinary appointments will increase with the years, which means that the practitioners enjoying part-time appointments to local authorities will be squeezed out. In some districts this is a serious matter financially to the part-time officers concerned, and probably means that great difficulties will be experienced in making ends meet. It may even mean that certain country districts will be without veterinary practitioners and there is thus bound to spring up in these districts the knowledgable man and quack, dabbling in veterinary science. There is an old saying that as one door shuts another opens, and one wonders if practitioners in certain districts are seizing their opportunities and cultivating the need for their services in sheep, poultry and rabbit diseases.

From the nature of their studies and training, there are a few subsidiary posts which veterinarians are eminently fitted to hold. It is within the knowledge of most of you that certain agricultural scientists have shown a tendency to decry the capabilities of a veterinary surgeon in regard to advising on dietetics. The training of the veterinary surgeon should render him peculiarly suited for this specialised task, and to me it seems somewhat extraordinary that more graduates do not take a keener interest in this subject. The explanation may be that agricultural science students have been given more opportunities through their agricultural colleges to specialise in this subject than have veterinary graduates. On the other hand, there is also the feeling that certain agricultural scientists have the idea that veterinary science should be fathered by them, or, should I say, that veterinary science should work under their control and domination?

Genetics in this country is a field in which the veterinary profession does not appear to have taken its proper place. Granted there are one or two veterinarians who are specialising in genetics, it seems to me we have been lacking in foresight, and instead of leading in this special line we are following on.

Agricultural and medical scientists are frequently showing a tendency to dabble in veterinary problems. This, to my mind, is an excellent stimulant, and serves to increase the output of the veterinary research worker on similar problems.

The " powers that be " are frequently approached by agricultural and other bodies, backed principally by lay opinions, with a view to issuing legislation against diseases which, from their very nature, do not lend themselves to control by legislation, but are better dealt with by the practitioner: one sometimes wonders if the practitioner is making it his duty to influence lay opinions sufficiently on these matters. Legislation will, in the future, probably mean that more work will be taken from the practitioner in country districts and thrown into the hands of whole-time officials, and the practitioner could enhance his reputation and at the same time help to fill his coffers if he studied this point of view a little more. In other words, is it better for the practitioner that he should endeavour to educate his clients more on these points, or does he wish for more legislation?

One could carry on in this strain, but enough has been said to " point a moral and adorn a tale," constraining one to ask if we, as a profession, are putting our backs into the job and occupying our proper sphere.

The emoluments from veterinary science indicate that we can never become a wealthy profession, and one must never lose sight of the fact that in these days money talks more than ever before.

The need for co-operation and unity in any profession is ever present, but I am convinced that this need in our own profession is more pressing and urgent than at any time in its history.

I was ever an optimist, and have great faith in our future, but it means hard work, loyal co-operation, and proof by our endeavours and actions that we can produce the goods.

It is no use the profession stating that its training postulates that its members should be given certain duties if, by its action, it has not satisfied public opinion that the duties already entrusted to it are in safe and capable hands, which means—do the task already to hand in a thorough and conscientious manner, and the rest will follow as night follows day.

I feel that I have been preaching, but if it has been the means of stimulating thoughts in the minds of the rank and file on the question of " where are we wandering?" my time will not have been wasted.

Mr. Curbishley moved a vote of thanks to Mr. Powley for his Presidential Address, saying that he would refrain from comment, as such was not necessary. Mr. Woods seconded, and said the address gave great material for thought. The proposition was carried with acclamation.

Cases of Interest.—The recital of a number of cases of clinical interest was now entered upon. The series was opened by Mr. K. D. Downham, who demonstrated lesions in a case of fowl paralysis affecting the sciatic nerve. Mr. Warwick Fowle followed, citing two cases of mistaken diagnosis, and Mr. Oddy reported on equine œsophagotomy in a cart mare. An interesting account of injury caused to the metarcarpal bones of a terrier by an elastic band was given by Mr. White, who also recounted a case of œsophageal obstruction by a bone in a terrier. [For detailed reports of these cases readers are referred to our Clinical Section.—Ed.]

Exhibits.

Mr. Hopkin exhibited two X-ray plates, which showed the necessity of obtaining views from different angles in cases of suspected fracture. Both plates were of the same leg, but whilst in one there was no sign of fracture, the second (taken at another angle) showed clearly the fractured bone.

Mr. Mayall exhibited the following specimens :—

(1) Hydatid cyst from the liver of a pig.

(2) Blackhead in the liver of a turkey.

(3) Mosaic appearance of liver of a rabbit attacked with larvæ of the tapeworm.

(4) Tuberculosis in the spleen of a fowl—a very good specimen.

(5) Rat tail larvæ of the drone fly.

Mr. Warwick Fowle exhibited two molar teeth of abnormal size, which had been extracted from a horse.

Mr. Noel Pillers exhibited a trout showing the lesions produced by the lamprey, and also a specimen of a lamprey. He explained that lampreys belonged to the sub-class Cyclostomata of cartilaginous fishes, and to the family Petromyzontidæ. Some authorities recognised three species, *viz.*, *Petromyzon marinus*, *P. fluviatilis*, and *P. planeri*, whilst others regarded the sea, river, and brook lamprey as one species, distinguished by factors attributable to size. Apart from its being an example of a temporary parasitic vertebrate, there is still a fishery for it abroad. It used to be fished at the mouth of the Severn, and King John fined the City of Gloucester for not paying him sufficient respect in the matter of lampreys.

Vote of Thanks to the Retiring President.

Mr. Hopkin proposed that a hearty vote of thanks be tendered to the retiring President, Mr. Curbishley, saying that he had set an example by the manner in which he had conducted the meetings from the chair during the past year, and the tremendous amount of hard work he had done for the good of the Society. He hoped Mr. Curbishley would be spared for many years to honour the Society with his presence.

Mr. Holroyd seconded and the motion was carried with enthusiasm.

Mr. Curbishley expressed his thanks for the way in which the proposal had been carried, and said he had only done his best, although he would have preferred the presence of the members at the meetings during the past year rather than their praise, and one or two members might have attended better. He hoped the enthusiasm which was now apparent would continue, and he would always be pleased to do what he could to further the interests of the Division.

Mr. Burrows moved that a hearty vote of thanks be tendered to the gentlemen who had presented the specimens and cases at the meeting that afternoon. Mr. Chadwick seconded, and the proposition was carried unanimously.

The meeting concluded with a vote of thanks to the President.

J. Spruell, *Hon. Secretary.*

Gland Grafting Experiments on Merino Sheep in South Africa.

Summary of Conclusions reached by Quinlan, Mare and Roux.

1.—Grafting ovaries into ewes and sections of testicle into rams has been successfully performed, from a surgical standpoint, under general anæsthesia.

2.—Ovary grafting in immature ewes does not exercise any beneficial influence on maturity, body-weight, wool production, or progeny.

3.—Testicle grafting in immature rams does not exercise any beneficial influence on maturity, body-weight, wool production, or progeny.

4.—Mating grafted rams with grafted ewes has no influence on their progeny, judged by weight at birth, and at a range of age averaging about 157 to 196 days, nor has it indicated any advantage on the weight of lamb fleeces shorn.

5.—The interovulation period in the merino sheep varies between 16 and 24 days, with an average of 17-18 days.

6.—In the five groups of first-season ewes mated with first-season rams, there was a low percentage of fertility, ranging from 20 to 88 per cent.

7.—Out of 123 first-season ewes, 14, or 11·4 per cent., failed to show œstrous when tested daily with vasectomised " teasers " over a period of three months—December to March.

Regarding the influence of Grafting on Senility :—

1.—The general health of the ram showing senility improved considerably after grafting a large section of testicle into the region of the flank. The improvement was maintained for about nine months. The improvement in general health was not accompanied by increased *libido sexualis*; the ram did not copulate, although he was sexually interested in ewes.

2.—The second operation of grafting into the scrotum caused a temporary increase in bodily vigour, but no increased *libido sexualis*.

3.—The third operation of grafting into the scrotum appeared to have only slight influence in checking advancing senility.

4.—The grafts, whether into the flank or into the scrotum, gradually became absorbed until no trace of them could be found.

5.—The internal organs, on *post-mortem*, were in extraordinarily good condition for an aged sheep.

6.—There is no doubt that grafting increased the length of life of the sheep.

7.—Grafting, to be of practical value, must be undertaken before marked symptoms of senility have become evident.

8.—Repeated grafting did not maintain the improvement in health established by the first operation. The improvement was less noticeable after successive graftings.

In Parliament.

The following questions and answers have been recorded in the House of Commons recently :—

Veterinary Medical Research.

Lieut.-Colonel Fremantle asked the Minister of Agriculture whether a scheme for the development and co-ordination of veterinary medical research is now being prepared; when it is proposed that it shall be put into operation; and whether an opportunity will be given to the House to discuss it before the details are finally decided?

The Minister of Agriculture (Dr. Addison): I can add nothing to the reply which I gave to a similar question from the hon. and gallant Member on Monday last.

Lieut.-Colonel Fremantle: Does not this scheme involve finance, and is it not right therefore that it should be submitted to the House in time for discussion?

Dr. Addison: Any scheme for research must necessarily involve finance, and I must await the scheme itself before giving any undertakings, but I can assure the hon. and gallant Member that I shall be glad of an opportunity of doing so.

Lieut.-Colonel Fremantle: Shall we have an opportunity of discussing the matter before a decision is taken or after it has been taken?

Dr. Addison: I have not seen the scheme yet fully prepared.

Mr. Charles Williams: Will there be a Supplementary Estimate on this matter?

Dr. Addison: I must have notice of that question.

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British Pedigree Livestock (Argentina).

Mr. Rosbotham asked the Minister of Agriculture whether he has any information with reference to the import duties on pedigree livestock from this country entering Argentina?

Dr. Addison: I am glad to say that the Argentine Government has cancelled the duty of 5 per cent. on pedigree livestock imported into Argentina for reproduction.

Mr. Rosbotham: Does not this show the importance of pressing forward with the legislation for the improvement of the livestock of this country?

Dr. Addison: Yes, I think it does.

. . . . .

Pit Ponies.

Sir R. Newman asked the Secretary for Mines whether he will consider the desirability of making legal provision regulating the number of hours and shifts a horse or pony may be worked underground per day and per week?

Mr. Shinwell: The proposal made in this question and others relating to the employment of pit ponies are under consideration.

. . . . .

Pit Ponies (Food).

Mr. Freeman asked the Secretary for Mines the number of mines or groups of mines that have installed the dust-extracting and automatic provender-mixing plants in order to provide clean and properly mixed food for pit ponies; whether he is aware of the advantages claimed for these plants; and whether he will recommend the general adoption of these plants by all colliery companies employing horses and ponies underground?

Mr. Shinwell: I know of these plants and the advantages claimed for them, but I have no detailed information as to the extent and circumstances of their use in mines.

. . . . .

Patent Medicines.

Mr. Haydn Jones asked the Minister of Health whether he proposes to introduce legislation to give effect to the recommendations of the Select Committee on Patent Medicines, whose report was issued in 1914?

Miss Lawrence: My right hon. Friend fears that owing to the present state of business, the Government are unable to undertake to introduce legislation on this subject during the present Session.

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

June 1st.—Meeting of the Editorial Committee, N.V.M.A., at 2 Verulam Buildings, Gray's Inn, W.C.1, 4.30 p.m.

June 4th.—**R.C.V.S. Annual General Meeting. Victoria Veterinary Benevolent Fund, Annual Meeting.**

June 4th.—Meeting of the Central Division, N.V.M.A., at 10 Red Lion Square, W.C.1, 6.30 p.m.

June 15th-20th.—D.V.S.M. Examinations.

July 2nd.—R.C.V.S. Annual Dinner.

Aug. 22nd-28th.—N.V.M.A. Congress at Norwich.

Death of Mr. H. J. Dawes.

We have been grieved to receive notification of the fatal termination of the illness (to which we referred last week) of Mr. Henry James Dawes, F.R.C.V.S., of West Bromwich, Honorary Secretary of the N.V.M.A.—the sad news reaching us shortly before we go to press with this issue. While this circumstance necessitates the postponement of publication of an adequate notice and tributes, we desire to give expression to the deep sense of loss which will be felt throughout the profession in the passing of a widely-known and much-loved figure, and to the universal sympathy in their bereavement which will be extended to Mrs. Dawes and family.

His wide range of sympathies and interests made the long life of Mr. Dawes a remarkable record of useful activities in both practical and political professional spheres, and in even so brief a preliminary notice as this one feature of his work demands reference from us. By the death of Mr. Dawes the "National" has been deprived of the invaluable services of one who has been closely and actively associated with that body for many years. As all know, Mr. Dawes died, as he would have wished, in harness—as its Honorary Secretary. Throughout his supremely useful life a man of ideals, he lived to see the fulfilment of this—that our Association, which was indeed his outstanding interest, should achieve a position of permanence and prosperity. To no one is that achievement more directly due.

An Election without Ballot.

Fellows and members R.C.V.S. will be aware, from the notice they have received of the Annual General Meeting of the Royal College, to be held on June 4th, that, as the number of nominations for Council, R.C.V.S. received does not exceed the number of vacancies, no ballot will be required. The eight gentlemen concerned are to be congratulated upon their unchallenged position as indicating their universal acceptance by the profession as worthy representatives to the governing body. The incident is not quite unique in the annals of this election, but at least we have to go back to 1915 to find a parallel.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

Gland Grafting and Sterility.

To the Editor of The Veterinary Record.

Sir,—The standpoint taken up by Major Brayley Reynolds is one which I support, and I consider that the views that he expressed will be supported by the mass of practical experience.

As the result of 17 years' comparative study of the subject of sterility, I am satisfied that the vast majority of cases met with in general veterinary practice are the result of uterine disease, and that the success of the treatment adopted depends on the duration of the disease before professional advice is sought, providing that irreparable changes have not taken place in the uterus. Major Reynolds emphasised that it was useless to massage the ovaries of a mare already in œstrous before service. I agree with him, and fail to see the object; and I doubt very much the accuracy of the assertion that some cases of sterility in the mare are due to delayed ovulation, with the result that the spermatozoa are either dead, or so weakened that fertilisation is impossible. Has this been proved to occur? If so, I should like to see it published.

Massage of the ovaries is logical in cases where it is desired to induce œstrum. In the case of the bovine, ovarian massage is easily carried out and is valuable in expressing cysts and persisting corpora lutea. It is not so easily done in the mare, nor is it so frequently necessary, except in cases of delayed œstrum.

I am satisfied that true ovarian and Fallopian tube diseases are secondary—I exclude tuberculosis in this statement—and are the result of primary uterine disease and extension of the infection. The bad practice of excessive douching of the paretic uterus is by no means an infrequent cause. In cases of so-called functional sterility, where œstrus is absent, as is observed in some heifers, the trouble may be primary. In this connection, I think that it is feasible to suppose that the amount of calcium in the blood serum may have an important bearing. I have by me experiments which show that, on an average, the amount of serum Ca. of cows in œstrous is higher than those in inter œstrous. Further, in cows with atretic follicles, an excess occurs. It has also been definitely shown that some ovarian and other glandular extracts will cause a rise in the proportion of Ca. and it is feasible to suppose that their effects are produced in this way. It is idle for the supporters of the grafting operation to deny the possibility of some hereditary trait of the donor of the graft being transmitted as there are cases on record where this has occurred. I have received a report from Dr. Quinlan,* who has been conducting gland grafting experiments on Merino sheep in South Africa, and his conclusions, in brief, are that although grafting had a beneficial effect on senility it was not accompanied by any increased *libido sexualis*, even after two operations. The rams, although sexually interested in ewes, did not copulate. He states that in cattle he has carried out gland grafting experiments, using ovarian grafts, whole ovary extract, corpus luteum extract, and Graafian follicle extract with varying results—sometimes encouraging and sometimes the reverse. He considers that the best subjects are those cattle or heifers in which infertility is accompanied by changes in the normal ovarian cycle, and emphasises that there was no history of previous uterine catarrh. It is idle to assume that grafting is going to have any beneficial effect where uterine disease is present, and it has been proved that, in cases of ovarian disease, uterine disease can always be demonstrated miscroscopically, although no clinical evidence is forthcoming on *post-mortem*. Reference has been made to the hereditary influence in sterility. I am satisfied that in some herds this has an important bearing, and I know of two herds (one a Guernsey, the other a Jersey herd imported from Russia prior to the War) where the original strains gradually died out, although other strains in the same herds showed a normal increase.

An important clinical fact was mentioned by Mr. Barker, of Hereford, in his valuable contribution to the subject of sterility, in a paper printed in this paper last year, regarding the position of the uterus in sterile cows, that, until the uterus has contracted and come to lie more or less within the pelvic girdle, fertility will not occur.

A great deal is written regarding the involution of the uterus. Pituitrin has been advised to hasten it, but I doubt very much if it will ever become a practicable proposition, and there are other agents which are cheaper and just as effective. The most common cause of bovine sterility is post-puerperal infection, and the early removal of placental membranes cannot be too greatly insisted upon. In cases of retention arising from abortion and other causes, it is not always easy to affect early manual removal, and when undertaken portions are apt to break off and remain in the uterine cornua. I have very little faith in the action of a pessary, and douching has very little to recommend it; I think that it is open to doubt if the fluid ever gets to the adhering surface and, unless siphoned out (and this is not always satisfactory or complete) only adds to the contained fluid. I have had excellent results with a colloidal preparation of magnesium hydroxide, made by the British Drug Houses, injecting a quart of a three per cent. solution, and repeating at daily intervals. This will either cause expulsion of the retained membranes or render their absorption innocuous. The injection, of course, is made into the uterus and, for preference, cold.

Yours faithfully,

Winchester. J. F. D. Tutt, M.R.C.V.S.
June 20th, 1931.

* Text of summary of conclusions is published elsewhere in this issue.—Ed.

Radiological Problems in Man and Animals.

A Correction.

To the Editor of The Veterinary Record.

Sir,—In the report of the discussion on the above subject at the Royal Society of Medicine, as appearing in the *Veterinary Record* for May 23rd, on page 581, column 2, line 30, I am stated to have said, in reference to the detection of navicular disease by X-rays, that "it was easy to trace simple erosion when superimposed upon a dense layer of bone." This should read "it was *not* easy," etc.

It would be an extraordinarily good skiagram that would show a moderately early lesion of navicular disease when one considers that the picture must be taken through the more or less dense os corona. In my experience, X-rays, useful as they are in so many cases, are not of much real value in the diagnosis of navicular disease. They fail to reveal anything in the earlier stages, and are quite unnecessary in the advanced cases.

Yours faithfully,

Geo. H. Wooldridge,
President, Section of Comparative Medicine.